American Druggist

Vol. XVIII. No. 3. NEW YORK, MARCH, 1889. Whole No. 177.

[Original Communication]

THE PROPOSED BOTANIC GARDEN.

Readers of the American Druggist, who are interested in the proposed plan of establishing a botanical garden in this city, may like to know something of one of the sites which has been mentioned as particularly eligible for this purpose.

Those who have travelled on the N. Y. and Harlem R. R. will recall the Bronx River, which is nearly parallel with the course of the railroad for many miles beyond Fordham, and which, at this place, passes off towards the south, to empty into the Long Island Sound beyond Riker's Island. From its mouth to a point near Woodlawn Cemetery, this stream forms the boundary of the city, and throughout a greater portion of its course its surroundings are of the most picturesque character. In

A view in the Bronx Park.

1883, the Legislature of the State appointed a commission to select and locate lands for public parks, and this commission chose, among others, an area of about 660 acres, located on both sides of the Bronx, from Williams Bridge on the North to West Farms on the South, the centre of which is to the eastward of the St. John's College, at Fordham. The late Professor Alphonso Wood, of the College of Pharmacy of the City of New York, used to be enthusiastic over this bit of country as a field for botanical research, and was accustomed, every spring, to take his class to it as a most desirable place for field practice. Taking a train on the Harlem R. R., from the Grand Central Depot to the Jerome Park Station, a short walk to the eastward brings the visitor to the western bank of the Bronx, and discloses one of the most charming bits of landscape to be found anywhere in the neighborhood of the city. We give a single illustration of a portion of this tract, but the number of equally beautiful views are almost without limit. Wherever in this park the botanical garden may be located, it will have most delightful surroundings; the only disadvantage being, that for many years to come it will be beyond the reach of the majority of those who might profit by its existence. For the present generation, at least, the park surrounding the Museum of Natural History would seem to be a better location, since it would be much more accessible for students and casual visitors.

[Original Communication.]

THE OLD LONDON DRUG WAREHOUSE.*

If the proposed demolition of the old warehouses in Fenchurch Street, belonging to the now defunct East and West India Dock Co., becomes *un fait accompli*, the London drug trade will lose one of its most interesting landmarks.

In these warehouses are situated the rooms in which for years past the members of the trade have been accustomed to inspect the drugs offered for sale by auction every fortnight, and it is not saying too much when we state that generations of druggists have trod the floors of these rooms since they were first devoted to their present use. Whilst some have come for profit, others, like the late Daniel Hanbury, have come for instruction, and to these latter the room and its contents must ever have proved a source of invaluable information.

Here may be seen collected together drugs from almost every country in the world—drugs, not as seen in the chemist's store, but in the natural condition in which they are sent from the various points of production. In the small museum attached may be seen specimens of everything in the way of curiosities that have appeared amongst the drugs imported during the last thirty years; fine specimens of gums of all descriptions; roots which have by nature been twisted in life-like and grotesque shapes; curious insects imbedded in transparent gums; skeletons of rats and reptiles, which have from time to time been found amongst the various goods sent into the port of London.

In the various show-rooms may be seen once every fortnight the goods which are offered for sale on the following day, and a casual visitor will find plenty to instruct him if he chooses to turn in and inspect them. To such as are not in a position to do so, a brief description of the various articles may not be devoid of interest.

The bulky goods are those which first attract the attention. Rows of serons of ipecacuanha meet the eye. These serons are made of hides, in pieces laced together with leather thongs. Sometimes as many as a hundred are exposed to view, but for the last year there has been a great scarcity of this root, and there are seldom more than

*From our English Correspondent.

about thirty to be seen at one time. Lately attempts have been made to introduce ipecacuanha grown in the East Indies, but the attempt has not been successful, owing to its inferior quality, and the few bales that have been disposed of have realized such low prices that there is not much chance of the attempt being made again. The East Indian root is in thick, short pieces, somewhat similar to the Carthaginian species, but paler in color, and is said to be totally deficient in the properties which render the South American root of value. The various descriptions of sarsaparilla are always plentifully exhibited, and the visitor may be sure of seeing nearly every kind. The Jamaican is the most valuable, and comes in large bales made up of small, roughly done-up bundles. There is also what is called "native Jamaica," which is easily distinguished from the real Jamaica by its red color, and seldom or never coming in bundles, being generally packed loose in bales. The Honduras kind is always done up in neat, tightly bound bundles, or bobbins, and is generally covered at each end with hides in addition to being iron hooped. Other inferior kinds are the Guatemala, Guayaquil, Lima, Jamaica, and Mexican, the latter being generally of very indifferent quality. Aloes of all sorts take up a considerable share of the room, and display infinite variety in the mode of packing. East India socotrine aloes are almost always in kegs; Zanzibars are either in tin-lined cases or else are packed in the skins of monkeys. The cases generally fetch more money, and therefore it is sometimes the practice to run those in skins into cases and resell them. Curaçoas are sometimes in boxes, but as often in gourds, and the different qualities of these are almost endless, the low dark predominating and the fine bright livery being scarce. Gum Benjamin is another article of which plenty can be seen by the visitor. The Siam quality is the most esteemed, and when in bold, flat pieces commands a high price. Of this gum a very fine specimen may be seen in the museum referred to, being a piece of the identical gum which was used at the funeral obsequies of the Emperor Nicholas, of Russia, and which then realized £120 per cwt. Sumatra and Penang kinds are of about equal value, and are of nearly similar quality, the Penang having a more glassy appearance than the Sumatra. This gum is always packed in large, square blocks, which have to be cut open before the quality can be discerned. In former days, it was the practice to saw the blocks in halves across the middle, but the shippers of the gum acquired a knowledge of this practice, and utilized it by packing the ends with gum of inferior quality, so that now it has become necessary to cut one or two blocks diagonally in order to discover the deception, and it is needless to say that this has been of great effect in preventing the fraudulent practice which we have mentioned.

We have not space here to give details of all the goods which may be seen in these warehouses, but they comprise a host of drugs, among which may be mentioned gamboge, myrrh, dragon's blood, gums of all sorts, jalap, sarsaparilla, rhubarb, scammony, and other drugs too numerous to mention. The valuable goods, such as musk, ambergris, civet, castor, etc., are shown in a separate room, and are equally open to inspection by the public. On a long table, running down the centre of the room, are laid out the various tins and bottles of these goods. A custodian is appointed by the Dock Company to watch the valuables and pilot the visitor on his voyage through the room. Most of my readers will be familiar with the appearance of musk in the pod, but, perhaps, some of them have only seen what are now called the old-fashioned pods, that is to say, the pods which have a thick under and upper skin. The attention of these must be called to what are called the thin-skin pods. These pods have the usual thick skin underneath, but the upper skin is simply a thin bladder, generally of a blue tint, the slightest prick in which would be sufficient to release the treasure confined beneath. These pods at the present moment realize about 95*s.* per oz., whereas the old-fashioned pods fetch about 10*s.* under that figure. The musk offered for sale is all of it sorted over by the warehouse keeper, and classified either as pile 1, 2, or 3, according to quality, the worst pods being of course put in the third category. False packing is of frequent occurrence with musk; John Chinaman being by no means above inserting lumps of lead and other foreign substances into the pods, and it is marvellous how cleverly they sometimes adulterate a pod which, to all external appearance, has never been tampered with. Russian cabardine pods have been greatly improved in appearance during the last few years, some fine parcels of thin-skinned pods having been on the market recently. Ambergris is also shown in all qualities, from fine light and gray down to black substances, which cause wonder as to what purpose they can be applied to.

Want of space compels me to forego a more full description of the articles of interest to druggists that can be seen at the Fenchurch Street warehouse, but I can only invite the visitor to London to include the "drug show room" in the programme of his tour, and can safely promise that he will derive both amusement and instruction from the experiment.

Creosote is said to be rendered tasteless by administering it in brandy and carbonated water.

[Original Communication.]

PHARMACOGNOSTICAL NOTES.

No. 6.—INSECT FLOWERS.

BY JOS. SCHRENK.

The contradictory and, in many re-spects, incomplete descriptions of the anatomical characteristics of the flowers furnishing insect powder, contained in recent publications,* was noticed when I had occasion to refer to them during an examination of some samples of the powder. In this brief note I will discuss only those points which seem to have been overlooked by former observers.

The ridges on the stems of the flower-heads of Chrysanthemum cinerariæfolium Benth. and Hook. (furnishing the Dalmatian flowers) consist of collenchyma tissue, which surpasses in bulk the bast and woody tissues of the fibro-vascular bundles; we find, therefore, in the powder fragments composed of collenchyma cells. It is evident that their number must vary in proportion with the quantity of stems ground with the flowers; in a good powder they should be met with only sparingly, but as their thickened walls consist of cellulose, they can be easily detected by the use of Schulze's reagent (chloroiodide of zinc). In Chrysanthemum roseum Weber & Mohr (the principal species furnishing the Persian insect powder), even the depressions between the ridges are lined with a layer of these cells, so that a closed ring of collenchyma is seen at the circumference of the cross-section of the stem.

The scales of the involucre are always strengthened and stiffened on their outer side, over and on both sides of the midrib, by a coherent layer of sclerenchyma cells, many of which are elongated, with oblique, often even pointed ends, and joined in the manner of prosenchyma cells. In the smallest quantity of the powder we find some fragments entirely consisting of these sclerotic cells, which are recognized as such by their thick walls pierced with narrow canals. These fragments are much more numerous in the Persian than in the Dalmatian powder; this is readily accounted for by the fact that the greater portion of the very rigid, greenish involucral scales (with the exception of the dark reddish-brown scarious margin) consists of sclerenchyma cells.

On the outer surface, and along the membranaceous edges of the scales of the Dalmatian flowers, there are numerous hairs of a very characteristic structure. A long cell with attenuated ends is placed horizontally on a stalk formed of from one to three cells arising from the epidermis. Usually the terminal, horizontal cell is bent and twisted in various ways (Figs. 1 and 6), frequently hooked at the end (Figs. 3 and 4), so that a dense, felt-like layer is formed, especially on the outermost scales. The point of insertion of the stem of the trichome also varies; frequently it is shifted to near the extremity of the terminal cell (Fig. 6), which is particularly the case with the hairs at the margin, near the apex of the scales. The flower stems are also densely covered with hairs of the same kind.

Unger† noticed similar trichomes *on the stem* of C. roseum cultivated near Berlin, and calls them "glandular hairs (colleters)." If they are of the same nature as those observed by myself, as I must assume from Unger's description and figure, they cannot be glandular hairs or colleters. Neither their contents nor the shape and structure of their walls compel us, in the absence of any observed secretion, to assign to them the function of glands, especially as the flowers of our plant are abundantly supplied with another kind of trichomes which are unmistakable epidermal oil-glands.‡

Unger states expressly § that C. (Pyrethrum) cinerariæfolium is *glabrous*. Numerous samples of the best quality of Dalmatian flowers, both closed and open, obtained from reliable commercial sources, invariably exhibited the hairs described.‖ It is barely possible that Unger has in view the flowers of C. cinerariæfolium growing spontaneously, which I had no opportunity to examine. If so, the general statement that the flowers are glabrous is, to say the least, misleading, for all the *commercial* Dalmatian insect flowers are obtained from *cultivated* plants. In any case, I must consider the occurrence of these characteristic hairs of great diagnostic importance, for, as the scales form a considerable portion of the flowers, the hairs always ought to be seen in the powder. In fact, I never

---

* An article by J. Hart (British and Colonial Druggist, reprinted in Pharmaceutical Record, Oct., 1888) is accompanied by some drawings which are intended to illustrate the tissues met with in the different parts of the flower. They are, however, so indistinct and devoid of minuteness of detail, that they are of little practical use. The elaborate paper by H. Unger in Pharmaceutische Zeitung, vol. xxxii., p. 685, and vol. xxxiii., p. 81 and p. 131, contains, besides the literature of the subject, valuable information, chiefly in reference to the amount and composition of the ash of various samples of the powder. There is also found a good morphological description of the flowers, while the histological characteristics are not completely stated.

In an article by G. M. Beringer on the "Hungarian Daisy" (Amer. Journal of Pharm., 1889, No. 1), which came to my notice after these notes had been written, the anatomical structure does not receive any attention. The only allusion to a microscopical examination is found on p. 4: "Microscopically no difference could be detected between the two powders," *i. e.*, those of the "Daisy" and the insect flowers. (!)

† L. c.

‡ C. F. Flückiger, "Pharmakogn. d. Pflanzenreiches," p. 783: "sessile, four-celled glands."

§ L. c., p. 81.

‖ Neither Flückigern or Marmé in their works on Pharmacognosy mention the hairiness of the scales.

failed to find them in good Dalmatian powder, at least the large terminal cells, either entire or broken.

In Persian insect powder I could detect only very few hairs, and the flowers of C. roseum which I subsequently examined proved to be almost entirely glabrous, only at the region where the stem widens into the receptacle, was the surface of the stem as well as the base of the outermost scales found covered with a white hoariness. The hairs were of the same structure as those described above, but the terminal cells were muceh longer. Very rarly a few scattered, very long hairs were found along the midrib, near the apex of the scale. The flowers examined had been imported from Batum, and answered in every respect the description of C. roseum,* so that Unger's assumption (based on the examination of some specimens raised in the botanic garden at Würzburg), that the spontaneously growing plants of C. roseum have no hairs at all,† does not seem to be correct, and it will be hardly necessary to consider the hairs found on the stems of the plants cultivated in the vicinity of Berlin as a specific distinction.‡ Still, the scarcity of these trichomes on C. roseum—provided it proves to be constant—combined with the comparative abundance of the sclerenchyma cells mentioned above, would enable us to tell the powders obtained of the two species of Chrysanthemum from one another.

These hairs are entirely absent from the involucre and the stem of a spurious insect flower known to the trade as the "Hungarian" or "Russian daisy," which seems to have been used as an adulterant of the Dalmatian flowers for some time.§ The admixture of this article to the true flowers, could, therefore, eventually be detected by the scarcity of the hairs; by a careful comparison with a standard powder even the relative proportions might be approximately computed. As a positive characteristic I would mention the small several-celled hairs which I detected on the apparently glabrous scales of these spurious insect flowers in considerable numbers. At first all of them presented themselves as simple, straight, four to ten celled trichomes (Fig. 11), but the peculiar abruptness of the terminal cell caused me to inspect a large number of hairs, when I noticed some which showed at their end the remnants of what must evidently have been a large inflated cell (Fig. 12). At last I detected a few hairs with a much elongated and thin-walled end-cell (Fig. 13). There seems to be little doubt that these are glandular hairs. The inflation and rupture of the terminal cell is a striking peculiarity of histological interest and deserves closer investigation. Another form of glandular trichome, consisting of 10 or 12 cells which form a globular head supported on a short stalk, occurs on the scales of these flower-heads.

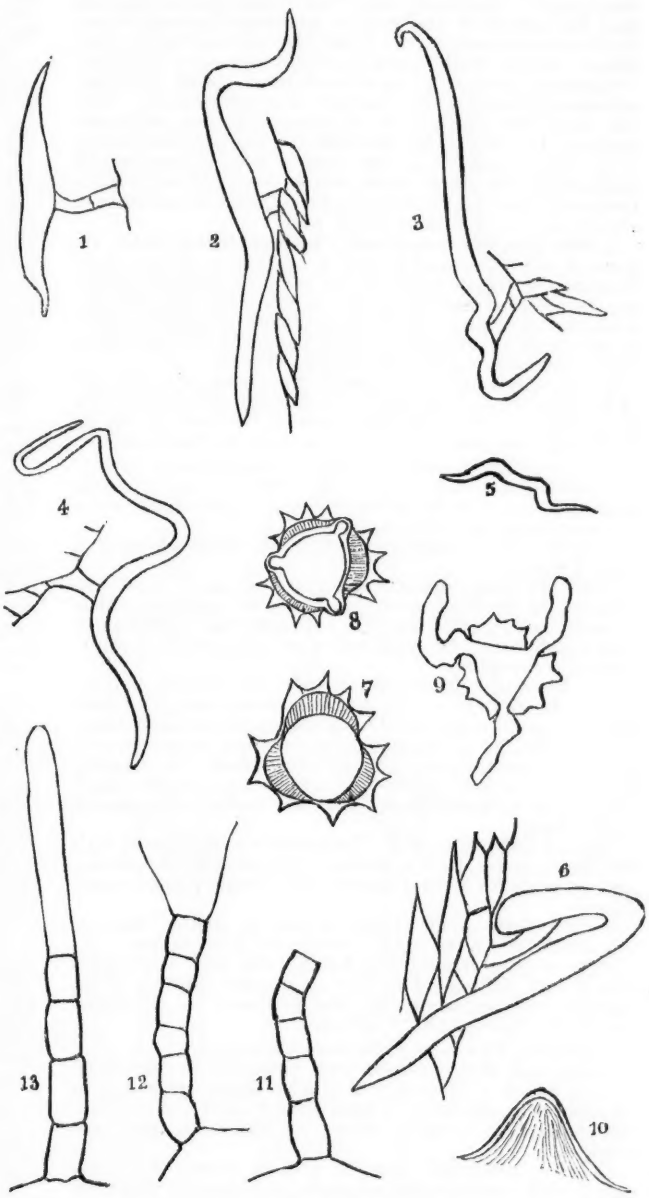
Most conspicuous among the fragments of the marginal corolla in insect powder are the papillæ covering the upper epidermis (Fig. 10). Their much-thickened striate walls do not seem to be easily broken up during the process of grinding. But as the petals of other related species are similarly constructed, this is of little practical importance. Merely for the sake of placing the observation on record, I mention the occurrence of stomata on the marginal corolla of C. cinerariæfolium, which are remarkably numerous, especially on the lower side.‖

The pollen grains are not perfectly globular, as might be inferred from some descriptions and figures, but on an optical cross-section present the appearance illustrated by Fig. 7, which shows the three depressions in the very much thickened, prickly exine, at which the intine breaks through when the pollen-sacks are formed (Figs. 8 and 9). The spurious insect flowers mentioned above have pollen grains of very similar structure and size, so that the comparatively large amount of pollen in a powder is not *eo ipso* a proof of its genuineness.

The insect flowers raised in California (Buhach),¶ which belong to C. cinerariæfolium, do not show any structural difference from the flowers grown in their native country.

Besides the usual fluids for clearing up or bleaching the tissues, Schulze's reagent will prove very useful in examining the powder. It will bring out very clearly the hairs and the collenchyma cells, which are stained blue, while the sclerenchyma cells and the pollen grains will assume a yellow color. At the same time, of course, starch, a very common adulteration of insect powder, will become plainly distinguishable, if present.

College of Pharmacy of the City of N. Y., Jan. 11th, 1889.



EXPLANATION OF FIGURES.

Figs. 1–6, hairs on stem and involucral scales of C. cinerariæfolium; Figs. 1–4, x 125; Fig. 5, x 91; Fig. 6, x 281. (Horizontal cells from 275–520 micromillimeters long.) Figs. 7, 8, 9, Pollen grains from Dalmatian powder, x 375. Fig. 10, Papilla of marginal corolla (from Dalmatian powder), x 230. Figs. 11, 12, 13, hairs from involucral scales of "Hungarian or Russian daisies," x 230.

Modified Formula for Brown Mixture.

Mr. J. H. Buckingham recommended to the Philadelphia College of Pharmacy at a recent meeting the following mode of preparing the Mistura Glycyrrhizæ Composita, which avoids the occurrence of a precipitate and yields a product which has been commended by several physicians:

Purified Extract of Glycyrrhiza	½ oz. avoir.
Sugar (Loaf)	½ " "
Gum-Arabic in Selected Pieces	½ " "
Camphorated Tincture of Opium	2 fl. oz.
Wine of Antimony	1 " "
Spirit of Nitrous Ether	½ " "
Ammonia Water	1 fl. dr.
Water	12 fl. oz.

The mixture of glycyrrhiza, sugar, and gum-arabic is tied up in a bag. Having mixed the other ingredients, with the exception of the ammonia water, place them in a wide-mouthed bottle and suspend the bag in the liquid. In two days the solids will be dissolved, when the ammonia may be added and the whole made to measure one pint by the addition of water.—*Am. Jour. of Pharm.*

"Encrivoir," a solution which easily remove the stains of ink and iron rust, is said to be a solution containing two parts each of alum, tartaric acid, and distilled water.

* Cf. Marmé, l. c., p. 271, and Flückiger, l. c., p. 783.
† L. c., p. 81.
‡ L. c., p. 132.
§ Cf. the note on insect flowers and powders by A. U. Andrus, Pharm. Record, Oct. 1st, 1888, p. 316; also G. M. Beringer, l. c.
‖ It is rather surprising that in J. Möller's excellent book "Mikroskopie der Nahrungs- und Genussmittel" (1886) we should find the statement (p. 55) that in the epidermis of the petals there are no stomata! Cf. De Bary, "Compar. Anat." (Engl. ed.), end of p. 45.
¶ Cf. the abstract from H. Semler's "Die tropische Agrikultur," in Amer. Druggist, Jan., 1887, p. 3.

Testing the Purity of Reagents.

Up to the present time, manufacturing chemists have been in the habit of putting on the market various qualities of chemicals, the better grades of which have usually been distinguished by the designations "purum," "purissimum," "chemically pure," etc. But it is well known that the purity of the articles was only a relative one, there being scarcely any which fully deserved the appellation. It is a well-known fact that when, for instance, "Sulphuric Acid, C. P." is ordered from one of our manufacturing chemists, the question is usually asked: "Do you want the ordinary C. P. acid, or do you want the really C. P., that is, the distilled?" Analytical chemists have, for a long time past, ceased to have faith in the labels of the chemicals which were purchased, even from the best houses, and usually were compelled to work them over if they wanted them really pure.

A little pamphlet has recently been published by Dr. C. Krauch, the chemist of E. Merck, of Darmstadt, in which the decisive tests of purity of the usual chemical reagents are enumerated and discussed. At the same time, the announcement is made that from this time forward the firm would vouch for the purity of their reagents, to the extent of the degree or limits given by Dr. Krauch.

As this subject is of very great importance, and the text of Dr. Krauch's pamphlet contains many data which will be of utility to the next Committee of Revision of the U. S. Pharm., we give its essential portions in translation.

1. *Acidum Aceticum purissimum concentratum* ($C_2H_4O_2$).

Clear and colorless. Spec. gr. 1.064. Every 100 parts contain 96 parts of absolute acetic acid. (Quantitative determination by normal potassa solution.)

Volatile: On evaporating 10 Gm., no weighable residue should remain.

Note.—If larger quantities of strong acetic acid are evaporated, there often remain traces of a residue which is partly combustible (organic). But 50 Gm. of the pure acid should leave, on evaporation, not more than 1 milligramme of residue.

Test for heavy Metals and Earths: On diluting 10 Gm. with water to 100 C.c., the liquid shows no change, neither upon being supersaturated with ammonia, nor after addition of sulphide or oxalate of ammonium, even when allowed to stand for some time in a warm place. On diluting 20 Gm. of the acid to 100 C.c., and mixing it with fresh solution of hydrosulphuric acid, no brown color should be developed.

Test for Sulphuric Acid: Dilute 10 Gm. of the acid with 150 C.c. of water, heat to boiling, add chloride of barium, and set aside for several hours. The liquid must remain clear.

Hydrochloric Acid: Dilute 5 Gm. to 50 C.c., add silver nitrate and nitric acid. No change must occur.

Empyreuma: On diluting 5 Gm. with 15 C.c. of [pure] water, and adding 3 C.c. of a $\frac{1}{10}$ normal solution of potassium permanganate, the tint produced by the latter should not fade within 15 minutes.

2. *Acidum Chromicum Purissimum* (CrO_3).

Small, red, *dry* crystals. On dissolving 2 Gm. in 20 C.c. of water, a clear solution is produced which, upon addition of some drops of hydrochloric acid and of chloride of barium solution shows no alteration after ten minutes.

Note.—Commercial chromic acid is mostly contaminated with considerable amounts of sulphuric acid and sulphates.

3. *Acidum Citricum Purissimum* ($C_6H_8O_7$).

Large, colorless, transparent crystals, permanent in the air, but efflorescing at a gentle heat, melting at about 165° C., and carbonizing when ignited. Soluble in 0.54 parts of water, 1 part of alcohol, and about 50 parts of ether.

[The reactions given are those of the Pharm. Germ., and need not be quoted here. In subsequent articles we shall omit such portions as can be easily supplemented by consulting the U. S. Pharm.]

4. *Acidum Hydrochloricum purum concentratum.*

Contains about 38% HCl. Spec. grav. 1.190. Clear and colorless; after dilution with water, odorless.

Tests for Sulphuric Acid: *a.* Dilute 5 Gm. with 50 C.c. of water, and add chloride of barium. No reaction should appear within 12 hours.

b. Limit: 100 Gm. of the acid should contain not more than 1 milligramme of absolute sulphuric acid. To determine this, 500 Gm. of the acid are slowly evaporated, on a water-bath, to about 1 C.c., and the sulphuric acid determined in the residue.

Note.—Regarding the tests for sulphuric acid, the author refers to Biltz, who found that acetic acid and acetates interfere least with the barium reaction; hydrochloric and nitric acid interfere most, between the two stand chlorides and neutral nitrates.

[From this it would follow, that acetate of barium would be preferable as a reagent when testing for free sulphuric acid, of course, provided HCl and HNO_3 are absent.]

Volatility.—On evaporating 10 Gm. of the acid, not more than a very minute, and scarcely weighable residue should remain.

Note.—On evaporating larger quantities of the pure acid, there will almost always be found traces of residue—probably lime derived from the glass and porcelain vessels—also sulphuric acid. The author usually obtained 1 milligramme of residue on evaporating 50 Gm. of the acid in a porcelain capsule. The preparation of an absolutely chemically pure hydrochloric acid is difficult. The author has in vain attempted to procure any from other chemical factories.

Tests for heavy metals, alumina, and lime:

a. Dilute 10 Gm. of the acid with 10 C.c. of water, pour upon this, contained in a test-tube, a layer of 5 C.c. of fresh solution of hydrosulphuric acid, and allow to stand for one hour. At the end of this time, either with or without heat, no color should appear between the two layers, nor a yellow ring (arsenic).

Note.—An acid which stands this test for arsenic is suitable for most analytical purposes. For special toxicological investigations, the absolute absence of arsenic is required. Tnis is shown when several liters, after evaporation with addition of chlorate of potassium, yield no reaction by Marsh's test. According to Otto and Beckurts, an acid of this degree of purity (from arsenic) may be obtained by treating ordinary hydrochloric acid with hydrosulphuric acid or with ferric chloride.

b. Dilute 20 Gm. with water, supersaturate with a slight excess of ammonia, then add a few drops of sulphide of ammonium and oxalate of ammonium. Even on protracted standing, no alteration, and particularly no dark tint, should be produced.

c. On diluting 5 Gm. with water to 25 C.c., and adding a few drops of sulphocyanide of potassium solution, no reddish tint should be produced.

Test for Sulphurous Acid: On adding a few C.c. of the previously diluted acid to water rendered faintly blue by iodide of starch, the color should not be destroyed.

Test for Chlorine. To 5 C.c. of highly dilute solution of starch add a few drops of solution of iodide of potassium, afterwards one drop of diluted sulphuric acid, and then 1 C.c. of the previously diluted hydrochloric acid. No blue color should appear.

5. *Acidum Hydrofluoricum fumans purissimum* (HFl).

Hydrofluoric acid is colorless, though sometimes it is found to have a slight tint, which is probably due to long contact with the interior of the caoutchouc container.

On evaporating 10 Gm. in a platinum capsule, and igniting, not more than a minute and scarcely weighable residue should remain. On thus evaporating 50 Gm., this residue should not exceed two milligrammes.

Test for sulphuric acid: Dilute two Gm. with 50 C.c. of water, then add some hydrochloric acid, and a drop of solution of chloride of barium. No precipitate should occur within five minutes.

Tests for arsenic, heavy metals, earths, etc.:

Dilute 10 Gm. to 40 C.c., warm, and pass hydrosulphuric acid gas, which should not produce either a yellow (arsenic) or dark-colored precipitate (heavy metals). On diluting 5 Gm. with 50 C.c. of water, supersaturating with ammonia, and adding [to separate portions] sulphide of ammonium, carbonate of ammonium, and phosphate of ammonium, no cloudiness should occur.

6. *Acidum Hydrofluosilicicum purissimum* ($SiFl_6H_2$).

On evaporating 5 Gm. in a platinum capsule, no residue should remain. If 5 Gm. are diluted with 10 C.c. of water, the liquid mixed with a little hydrochloric acid, and then with solution of hydrosulphuric acid, no precipitate should occur.

On diluting 5 Gm. with 10 C.c. of water, and adding a solution of nitrate of strontium, no cloudiness should appear within five minutes.

7. *Acidum Molybdicum purum.*

A white powder, containing about 85 per cent of molybdic anhydride, and about 15 per cent of nitrate of ammonium and moisture.

A solution of one part of the substance in five parts of dilute ammonia is clear, and is not altered by addition of sulphide of ammonium.

Test for phosphoric acid:

Dissolve 10 Gm. of the substance in 25 C.c. of water, and 15 C.c. of water of ammonia (sp. gr. 0.910), and add 150 C.c. of nitric acid (sp. gr. 1.200). No yellow precipitate (of ammonium phosphomolybdate) should appear within two hours, even when the mixture is exposed to a very gentle heat.

8. *Acidum Molybdicum purissimum, sine ammonia* (MoO_3).

Containing about 100% of the pure acid. This has a faint bluish tint, caused by very minute traces of molybdic oxide.

On adding 2 Gm. to 10 C.c. of water and 5 C.c. of water of ammonia (sp. gr. 0.910), and gently warming, complete solution takes place in a short time. Sulphide of ammonium, added to the solution, produces no change.

Test for phosphoric acid: As in the preceding.

9. *Acidum Nitricum Purum.*

Contains about 33 per cent of the absolute acid, is clear and colorless. Spec. grav. 1.200.

On evaporating 10 Gm. in a porcelain capsule, not more than a very minute and scarcely weighable residue should remain.

The author adds that when larger quantities were evaporated there was always a weighable residue (lime); 50 Gm. of the acid yielded usually 2 to 3 milligrammes of residue.

Many are in the habit of testing for the absence of fixed residue by evaporating a few drops on platinum foil. But this is not sufficient. It is often of importance to ascertain the residue left by larger portions, and in this case this is best done by making a duplicate trial, in a porcelain and in a platinum capsule.

The tests for impurities given by the author are about the same as those in the U. S. P.

10. *Acidum Oxalicum purissimum* ($H_2C_2O_4.2H_2O$).

Colorless crystals without any traee of efflorescence.

On igniting 10 Gm. in a platinum capsule, no weighable residue must remain.

The author states that "purissimum" acid occurs in the market which contains potassa, and leaves behind, on ignition, a strongly alkaline residue.

On dissolving 5 Gm. in 100 C.c. of water, and adding a few drops of hydrochloric acid and solution of chloride of barium, no cloudiness or precipitate should appear after standing for several hours in a warm place (absence of sulphuric acid).

A solution of 1 in 10 should not be altered by addition of ammonia and sulphide of ammonium (absence of heavy metals).

Test for ammonia: (a) 2 Gm. are warmed with an excess of solution of soda in a test tube. No odor of ammonia should be given off. Moistened turmeric paper should not be rendered brown by the escaping vapors. (b) 2.5 Gm. are dissolved in 30 C.c. of water, the solution supersaturated with caustic potassa (purified by alcohol), and about fifteen drops of Nessler's reagent added. No distinctly yellow or brownish-red color should be developed.

NOTE.—Oxalic acid containing ammonia has at times been sold in the market.

Note on Sulphurous Acid and Sulphites.

IN a recent paper on "The sulphurous acid and sulphite of sodium of pharmacy," published in the *Pharm. Journal* (Jan. 19th), Mr. Barnard S. Proctor criticises the process of assay directed by the British Pharmacopœia as unnecessarily scientific and troublesome. He suggests an improved method, which yields practically as good results, and is more easily executed by the average pharmacist. The British Pharm. requires liquid sulphurous acid to contain 5 per cent of sulphurous acid gas (SO_2), or 6.4 per cent of real sulphurous acid (H_2SO_3). Upon this basis, Mr. Proctor's process is as follows:

Put into a 1-ounce vial 11 grains of iodine and 15 grains of iodide of potassium, pour upon them 1 fl. drachm (Brit.) of the acid to be tested, rinse the measure with a drachm of water, adding this to the contents of the vial, and shake well. The iodine color should disappear if the acid be of full strength; this, however, is not often the case, and the degree of deficiency may be roughly estimated by adding successive portions of the acid, say 10 minims at a time, until the brown color disappears. [Applied to the U. S. Ph. acid, the above quantities may be altered to 7 grains of iodine, 10 grains of iodide of potassium, and 50 grains of the acid.] One hundredth of a grain of free iodine gives a distinct brownish-yellow color to a drachm of solution, but though this color entirely disappears when there is just sufficient sulphurous acid to convert the iodine into hydriodic acid, a few drops more of sulphurous acid again develop color, this time a lemon-yellow, removable by a small further addition of iodine or a free dilution with water. This lemon-yellow color, produced by any considerable excess of sulphurous acid, need not cause any hesitation in the use of this method, as the difference between the lemon and the brown tint is sufficiently distinct, and the former is accompanied with the odor of free sulphurous acid. In the Brit. Pharm. [and also the U. S. Ph.] the sulphurous acid is diluted with a large bulk of water; but this water requires to be recently boiled and cooled, otherwise the oxygen contained therein would vitiate the results. When the test is performed in the manner above directed, the reaction is quite sufficiently sharp.

Regarding sulphite of sodium, the author recommends a similar method. Take 10 grains of resublimed iodine (assuming this to be pure), put it into a measuring glass or mortar, and rub it with a drachm of water. Then weigh 10 grains of the sulphite, and add the bulk of it to the contents of the mortar, reserving about half a grain; triturate for a moment. The iodine should all dissolve and be nearly decolorized. The addition of the last half-grain should totally decolorize the iodine solution, if the sulphite be in good condition. If decolorization takes place before the last half-grain is added, the salt has probably lost water by efflorescence; and if the brown color remains after this addition, the salt has probably been partly oxidized to sulphate.

Solubility of Sulphite of Sodium.—The author finds the rate of solubility of this salt to differ from that given by the Pharmacopœias and other authorities.

Recently recrystallized sulphite of sodium requires 1.7 parts of water at 58° F. for solution, and about 100,000 parts of alcohol (Brit. Ph.; sp. gr. 0.838).

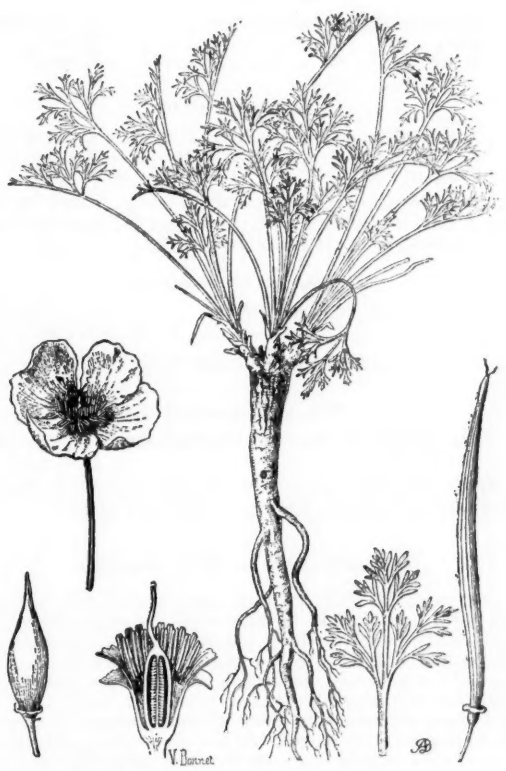
ESCHSCHOLTZIA CALIFORNICA AS A SOPORIFIC.

ESCHSCHOLTZIA CALIFORNICA *Cham.*, belonging to the natural order Papaveraceæ, is a native of western North America, and is principally found in California. It is a herbaceous, glabrous, glaucescent plant, with alternate, petiolated, many-lobed leaves possessing linear lobes, and no stipules. The flowers are terminal, and are borne on long peduncles. The golden yellow corolla is formed of four sessile, fragile petals. The two valvate sepals are united throughout their whole length, and can be detached, at the base, in shape of a funnel. The fruit is small, oblong, dry, and capsular, longitudinally traversed by ten prominent ribs, and dehiscent, down to the base, into two stiff valves, bearing the seeds at the edges.

According to Green (*Pittonia* I, 43), there are ten varieties of this plant, which differ but little from each other.

Aqueous and Alcoholic Extract of Eschscholtzia.

The following process is given: Reduce 100 parts of the whole plant (root, stem, leaves, flower, and fruit) to as fine a state as possible, and digest it with 500 parts of alcohol of 80%. After six days separate the liquid from the drug by decantation and expression, and filter. Again macerate the drug with 300 parts of alcohol of 80% during twenty-four hours, and pour off the liquid portion. Filter this, concentrate it by evaporation, and add it to the liquid ob-



Eschscholtzia Californica, Cham.

tained in the first operation. Filter the whole, and evaporate, on a water bath, to pilular consistence.

The alcoholic extract thus obtained is very resinous, deep green, and has a strong, very agreeable, and peculiar odor, and a very bitter taste. Every 100 parts of the plant yield about 20 parts of extract, containing about 3 parts of resinous substances.

In the same manner an aqueous extract may be made, substituting water for alcohol. The yield of aqueous extract is 15 per cent.

[*Note by Ed. Am. Dr.*—As the plant is probably not injured by heat, it will be preferable to dry and powder it, and to use the process of percolation for the purpose of exhausting it.]

Chemical Composition.—It has been ascertained so far, though not yet with absolute certainty, that the plant contains, besides a small quantity of morphine, a larger quantity of another base, and probably a glucoside.

Result of Physiological Experiments.—The latter have shown that the plant, or its abstract, at first accelerates, and afterwards retards respiration; the extract as obstained by the above-given process causes, when given in full dose, a rise of temperature. When it has been deprived of resin, it lowers the temperature. Its action upon the nervous system is only noticeable when it is administered in very large doses.

Therapeutic Effect.—The authors tried the alcoholic extract upon 13 patients, suffering from chronic bronchi-

tis, phthisis, Bright's disease (commencing stage), sciatica, nephritis, and other diseases, giving it first in doses of about 12 grains and gradually augmenting up to about 120 grains. It produced no disagreeable symptoms whatever, except in the case of consumptives, who cannot bear the drug. The extract was administered in syrup of acacia. [Incidentally, the authors say that "in America, the dose of this extract is 2 tablespoonfuls corresponding to 6 grammes of extract for an adult in 24 hours. We think the authors meant to say that the *fluid extract* could be taken in doses of 6 Gm.—Ed. Am. Dr.]

The effect produced by the drug is the same as that produced by morphine, without the inconveniences of the latter. Some of the patients took the extract during six consecutive days, and suffered not the least discomfort, nor constipation.

The experiments thus far conducted show that Eschscholtzia californica is a valuable and harmless soporific and analgesic, particularly in cases where the use of morphine would be followed by inconveniences.

As it contains, itself, but a very small quantity of morphine, it might be used as a substitute of the latter particularly in the treatment of children.

The authors employ the drug in the following forms, in which we have translated the metric quantities into the nearest approximate U. S. weights and measures:

Alcoholic Potion.

Alcoholic Ext. of Eschscholtzia	gr. 40 to 150
Rum	fl. oz. 1
Syrup	fl. oz. ¾

Aqueous Potion.

Aqueous Ext. of Eschscholtzia	gr. 48 to 180
Pectoral Infusion	fl. oz. 3½
Syrup of Acacia	fl. oz. 1

Pectoral Infusion—Tisane pectoral—is prepared by infusing 1 part of Species Pectorales (see "National Formulary") with 100 parts of boiling water.

Syrup of Eschscholtsia.

Aqueous Ext. of Eschscholtzia	tr. oz. 1
Syrup	tr. oz. 8

Dose: One to 4 tablespoonfuls per day.

Pills of Eschscholtzia.

Alc. (or aqueous) Extract of Eschscholtzia	gr. 300
Excipient	q. s.

Make 40 pills. *Dose:* 5 to 15 pills per day.—Dr. Ter. Zakariantz in *Bull. Therap.* of January 15th.

Preservative for Milk Samples.

Owing to the fact that milk undergoes rapid changes on keeping, and that it is impossible to withdraw uniform samples from milk which has undergone separation and decomposition, it is necessary that any sample of milk intended for analysis shall reach the chemist without delay, and that the latter shall take it at once in hand. But there are many reasons why some efficient preservative should be found, so as to permit the analysis being performed at any time within a reasonable period after the sample has been taken. Either the chemist prefers a delay, as he may be engaged upon other work which should not be interrupted. Or, he may wish to put aside a sample, so as to be able to check his results in case of doubt. Or, a sample may be put by for future use, perhaps as a corpus delicti in a prosecution or law suit.

With a view towards accomplishing this, Prof. Allen some years ago devised a method to preserve milk with alcohol. But it is necessary to add a large amount of this, and in very exact proportions. Moreover, it is doubtful whether the analysis of a sample so preserved would be of any value in a law court.

Mr. H. Droop Richmond, endeavoring to find a better method, successively tried carbon bisulphide, ether (both of these already used for this purpose by Hehner), dichlorophenol, chloroform, terpenes and hydrofluoric acid. Chloroform which kept the milk in a fluid state, and the fat in an easily miscible condition, proved to be the most unreliable. Carbon bisulphide kept the milk fluid, but allowed the cream to rise so as to form a cake at the top, which could not be easily worked again. Dichlorophenol preserved the milk fairly well, but the cream rose. Ether and terpenes were of little use. But *hydrofluoric acid* [the ordinary acid of commerce], of which 0.5 per cent of the weight of the milk was added, or one drop to every 10 C.c. of milk, preserved the latter almost perfectly. Of course, it precipitated the casein, but a vigorous shake brought this into so finely divided a state that sampling was quite easy, the fat being evenly mixed. There was not the slightest blackening of the total solids after preservation, showing that decomposition had not taken place.

A further trial of this method showed that hydrofluoric acid only exercises a preservative action when added while the samples are fresh. If decomposition has once commenced, it is of very little use.

The author recommends to add to every sample of milk, at the time of receipt, 0.5 per cent of commercial hydrofluoric acid, and then to securely seal the bottle. The amount is so small that no allowance for increase of volume need be made.—After *The Analyst*, Jan., 1889.

[*Note by Ed. Am. Drugg.*—In the discussion upon this paper it was pointed out that it would be of the greatest advantage if milk could be treated with a preservative at the time when the samples are taken from the dealers' cans. On the other hand, it was deemed improper to permit inspectors or other non-scientific agents to add anything whatever to the milk, as this might invalidate any prosecution. This is, of course, an important point, and cannot be gainsaid. But, *possibly*, there is a way out of the difficulty, provided that is found that *fluorides* possess the same preservative powers as free hydrofluoric acid. In general, it is known that free acids (such as salicylic, boric, etc.) are more active anti-fermentatives than the respective salts. And this may be the case also with hydrofluoric acid. But, perhaps, an increase of the corresponding fluoride may make up for this. Supposing, then, that this is found feasible, then we would suggest that the authorities procure a uniform style of bottle for samples; that they be made absolutely clean and *dry*, and that a quantity of, say fluoride of potassium (under proper precautions to prevent access of moisture), be introduced into the bottle, and the latter then securely sealed. When an inspector goes around to collect samples, he takes a number of these sealed bottles with him. Upon entering a place where he wishes to collect samples, he takes out the requisite number of bottles, opens and fills each one to the proper mark, and then seals them up. One of these bottles, according as the law directs, may be handed over to the dealer, or sent to a central authority.]

The Estimation of Glycerin.

Dr. Otto Hehner recently read a paper before the Society of Chemical Industry on the methods which have been most recommended for estimating glycerin. Two of these methods, viz., by converting glycerin into a lead-salt and that by permanganate, were found so unreliable that it is not worth while to consider them. Among the remaining methods, Dr. Hehner regards the bichromate and the triacetin methods to be the most trustworthy, and he advised both of these to be used, a mean of the results being taken as the percentage of glycerin in the liquid under examination. Although he does not place the ether-alcohol method on a level with the preceding, yet he mentions it, and for the sake of completeness we give all three methods below:

1. *Ether-Alcohol Method.*—In this the glycerin is removed from the liquid by ether-alcohol, and after evaporation the residue of the ether-alcohol solution is weighed as glycerin. Dr. Hehner pointed out several sources of error in this method, more especially that the solvent extracts from the lyes [viz., soap-lyes; in mixtures free from such impurities the results are more exact.—Ed. A. D.] other organic matters, such as fatty acids. Speaking of the volatility of glycerin, he said that experiments which he had made all pointed to the fact that, as long as there was twenty-five per cent of water in the mixture it might be boiled for hours without any loss of glycerin.

2. *Bichromate Oxidation Method.*—In this a measured portion of the sample is treated with bichromate of potassium and sulphuric acid. The glycerin is oxidized wholly to carbonic dioxide (CO_2), which in the original process was measured, and from the factor obtained the amount of glycerin was calculated. Dr. Hehner therefore prefers to determine the amount of bichromate used, and from this to calculate the amount of glycerin present. The standardized solution contains 74.86 grains of pure potassium bichromate per liter, and the check solution 240 grains of ammonio-ferrous sulphate per liter. Seven parts of bichromate are considered to be sufficient for the oxidation of one part of glycerin. With this proportion it is therefore mixed in a beaker, a large excess of sulphuric acid added, and the whole heated until decomposition is complete. The excess of bichromate is then determined by means of ammonio-ferrous sulphate. Several precautions are necessary, chief of which are the removal of chlorine and chlorine compounds with oxide of silver, and the precipitation of impurities with acetate of lead. If these are not removed, the results are a trifle high, but otherwise the method is accurate, easy, and reliable.

3. *Triacetin Method.*—In this the sample is heated with acetic anhydride and dry sodium acetate, an inverted condenser being used to insure the return of all free acid which may distil; when the reaction is complete, the mixture is filtered from insoluble matter, a portion of the filtrate saturated with alkali in excess, and immediately titrated back with standard acid. The precautions which must be observed in this process are that the sodium acetate must be perfectly dry, otherwise the glycerin is imperfectly converted owing to hydrolysis, which increases with time. Alkali has even a greater effect in this direction, hence the titration must be conducted as rapidly as possible.—After *Chem. and Drugg.*

Note on Expressed Oil of Almonds.

THE Pharmacopœia Committee of the Germ. Pharm. Association has recently published a new series of improved descriptions and tests. Among these is the following on expressed oil of almonds, which we reproduce here, together with the commentary (after *Arch. d. Pharm.*, 1888, 1,111).

Oleum Amygdalarum.

The fixed oil of the seeds of *Prunus Amygdalus.* Light-yellow, remaining clear at −10°, of a mild taste, and having the spec. grav. 0.915 to 0.920. On briskly shaking 1 volume of fuming nitric acid with 1 volume of water and 2 volumes of the oil, a whitish, not red or brown, mixture should be produced, which, after a few (inside of six) hours separates into a firm, white mass, and a scarcely colored liquid.

If 10 parts of the oil are digested with 15 parts of solution of soda [sp. gr. about 1.160] and 10 parts of alcohol [sp. gr. 0.838], until the mixture has become clear, then 100 parts of water be now added, and the whole supersaturated with hydrochloric acid, an oily layer separates. If this is removed, then washed with warm water, and rendered clear over a water-bath, it will remain liquid at 15° C. This oil should yield, with an equal volume of alcohol, a clear solution, which should not separate any fatty acids at 15° C., and which should not be rendered turbid on being diluted with an equal volume of alcohol.

Commentary. As has been shown by Peters, the genuineness of the several fixed oils may be, at least partly, judged, from the melting and congealing points of their respective fatty acids, and from the solubility of the latter in alcohol. These criteria are particularly useful in the case of oil of almonds, since it consists almost entirely of oleate of glyceryl, while the more common adulterants of it, viz., peanut, cotton seed, and sesame oils (as well as olive oil), contain, besides, more or less of the glyceryl compounds of palmitic, stearic, and arachic acids. Hence the melting points of the fatty acids extracted from the latter are higher, and at the same time they are less soluble in alcohol.

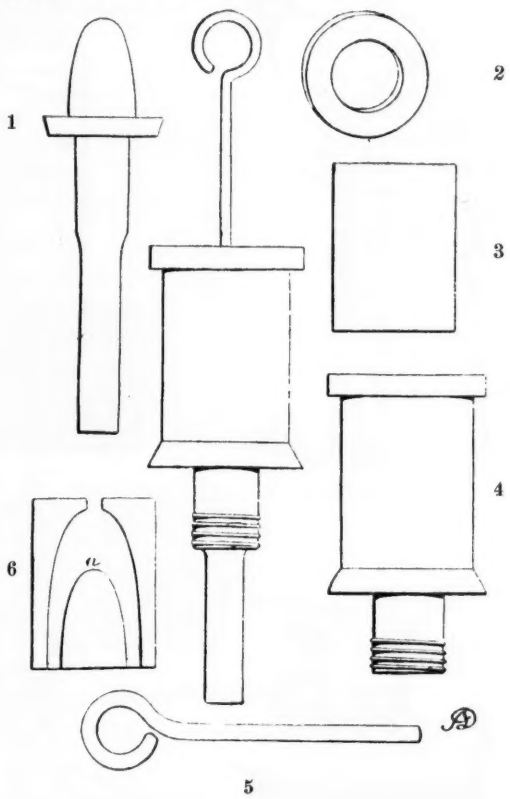
The melting points of the fatty acids of the above mentioned fatty acids are given as follow:

From oil of almonds	at	14.2° C.
" " olive	" 24	—29° C.
" " sesame	" 23.5—	35° C.
" " peanuts	" 26.5—	35° C.
" " cotton seed	" 32	—43° C.

It has been found that admixtures of olive, sesame, cotton-seed, and peanut oil, in quantities more than 50%, may be recognized with certainty by the congelation of the separated and clarified fatty acids at a temperature of 16° to 17° C. Smaller admixtures are still recognizable from the fact that the alcoholic solution of the fatty acids (1 in 2), at 16° C., separates particles of fatty acids. Pure oil of almonds, as well as oil of peach kernels (which latter is, however, discovered by the elaidin test), furnish an oleic acid which does not separate any solid fat at 15° C., even after standing for many days, and the alcoholic solution of which (1 in 2) remains permanently clear at 15° C.

We have, therefore, here a method to detect any addition of the foreign oils down to a percentage of 20. The best mode of proceeding is as follows: Put 10 Gm. of the oil of almonds to be tested, together with 15 Gm. of solution of soda (see above), and 10 Gm. of alcohol into a flask holding about 150 C.c., and heat upon a water-bath to a temperature *short of reaching the boiling point*, to prevent spattering of the liquid, when the latter is gently agitated. When the saponification is completed after 15 to 30 minutes, and the liquid has become clear, 100 Gm. of warm water are added which produces a perfectly clear solution, if the oil was pure and the soda solution of proper strength. After supersaturation with hydrochloric acid, the oleic acid separates. This is made to collect in the neck of the flask, for which purpose sufficient water is added, if necessary. The oily layer is now carefully removed, the flask cleaned, the oil replaced therein and thoroughly agitated with warm water. Enough water is now added to bring the layer of oleic acid again into the neck, and the flask then placed into hot water, until the oily layer is perfectly clear, which sometimes requires several hours. The layer is next transferred into a dry glass, and kept for some time at 15° C. If the oil of almonds was pure, the oleic acid remains permanently clear, but congeals if the temperature falls to 14° or 13° C. On adding to 1 C.c. of the liquid oleic acid 1 C.c. of alcohol (0.838), a clear solution is produced, which remains permanently clear if the test-tube is stoppered and set aside for some hours at a temperature of 15° C. Addition of 20% of oil of olive, or cotton seed, or sesame, or peanut are shown by the separation, during this time, of small portions of solid particles. With larger proportions of foreign oils, the quantity of these increases. Finally, the alcoholic solution of the oleic acid above mentioned (amounting to 2 C.c.) is diluted with 2 C.c. more of alcohol, when it should remain clear. The object of this test is to prove the absence of paraffin oil. If the oil of almond contained, originally, more than ½ of paraffin oil, it does not produce a clear soap solution upon saponification. But small portions of the adulterant accompany the soap as well as the separated fatty acid up to the moment when the second dilution with alcohol is made, when it shows itself by rendering the liquid cloudy. But the amount of alcohol must not be increased, since a separation or cloudiness would then occur even if the oil had been pure.

The above method does not permit the detection of oil of poppy or of sun-flower, since the fatty acids of these oils possess a melting point and solubility in alcohol but little differing from that of oil of almonds. Oil of poppy, however, is detected during the elaidin test both by the brownish color of the congealed oil, and by the liquid portion, which is either mixed with it or floats above. In the proposed pharmacopœial text above given, the elaidin test has been modified so as to direct parts by volume, in place of parts by weight. Further the quantity of oil, as compared with acid, has been decreased, since with the new proportions, even the fixed oil obtained from *bitter almonds* will congeal after 5 or 6 hours. With the old proportion this required often 1 or 2 days. At all events, more attention should be paid to the quality of the fuming nitric acid, since the whole success depends on the amount of hyponitric acid contained therein.



IMPROVEMENT IN SUPPOSITORIES.

A. WYBRANT describes an apparatus for making suppositories [or pessaries, as he terms them], which may be described as follows: A piece of metal having a conical head and collar, of the form shown in Figure 1, gives form to the cavity of the suppository. A collar (Figure 3) is placed over the cone and upon the fixed collar, and these are inserted into the cylindrical piece (Figure 2), which forms the outer surface of the suppository. All these are dropped into the cylindrical box shown in Figure 4, when the apparatus is ready to receive the suppository mass. Figure 6 shows a section of 1 and 2, and the hole in the top of the latter, through which the melted suppository mass is to be poured. A piece of wire (Figure 5) serves to clear the opening when it becomes clogged. The whole apparatus is shown in the central figure. The melted ingredients having been poured in, and sufficiently cooled, the outer case is removed, the outer mould taken off, and the suppository taken from the cone with the aid of the detachable collar. The object of the cavity is for the insertion of the tip of a finger to facilitate the introduction of the suppository into the bowel or vagina, or to hold a medicinal substance, in which case the opening may be closed with a disc of the suppository mass.—*Pharm. Jour.* [It is our belief that the form of a hollow suppository such as is here described is covered by a patent.—[ED. AM. DRUGGIST.]

Substitute for Indian Cholagogue.—Sulphate of quinine, 2 drs.; fluid extract of leptandra, 2 drs.; saturated tincture of stillingia, 4 oz.; fluid extract of podophyllum, 3 drs.; oil of sassafras, 10 drops; oil of wintergreen, 10 drops; molasses sufficient to make 8 fl. oz.

[ORIGINAL COMMUNICATION.]

THE ART OF DISPENSING.

[Continued from page 25.]

CARE OF POISONS.

NOTHING connected with the practice of pharmacy appeals so strongly to the sentiments of the public as the fact that the proprietor of a drug store is the custodian of substances, some of which are of such virulent nature that they are capable, even in minute doses, of destroying life, and the majority of which require to be used with more or less circumspection. It is an appreciation of this fact by the general public which justifies legislative restriction of the right to practise pharmacy to those who are proved to possess a requisite degree of knowledge concerning the wares which they handle. Where no such legal restriction is enforced, years of painstaking business are a necessary preliminary to an established reputation, and even then one notable misadventure will sometimes ruin the financial prospects of any establishment, and create suspicion on the part of many persons that no pharmacist is to be trusted. There are urgent reasons, therefore, why every pharmacist should adopt safeguards in the care and dispensing of poisons which will, as far as possible, reduce the chances of accident to a minimum.

We have already mentioned some things connected with the art of dispensing which have for their basis the necessity for exercising extreme caution in this particular, but there remain some things which may be added.

The German government, to insure the attention of pharmacists to the greater care required in the use of certain remedies, has arranged the articles of the Pharmacopœia as follows:

TABLE A.—Designating the largest dose for an adult, which the physician must not exceed in his prescription, when intended for internal use, except he adds the exclamation point (!).

TABLE B.—Containing the names of medicines which are usually called poisons, and which must be preserved VERY CAUTIOUSLY under lock and key.

TALLE C.—Names of medicines which must be kept CAUTIOUSLY and separately from the others.

The Pharmaceutical Society of Great Britain, at a general meeting of the Society, held May 17th, 1871, adopted the recommendations:

1. That in the keeping of poisons, each bottle, vessel, box, or package containing a poison be labelled with the name of the article, and also with some distinctive mark indicating that it contains a poison.

2. Also that in the keeping of poisons, each poison be kept on one or other of the following systems, viz.:

(*a*) In a bottle or vessel tied over, capped, locked, or otherwise secured in a manner different from that in which bottles or vessels containing ordinary articles are secured in the same warehouse, shop, or dispensary; or

(*b*) In a bottle or vessel rendered distinguishable by touch from the bottles or vessels in which ordinary articles are kept in the same warehouse, shop, or dispensary; or

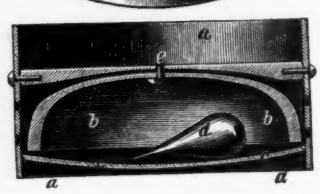
(*c*) In a bottle, vessel, box, or package kept in a room or cupboard set apart for dangerous articles.

3. That in the dispensing and selling of poisons, all liniments, embrocations, and lotions containing poison be sent out in bottles rendered distinguishable by touch from ordinary medicine bottles, and that there also be affixed to each such bottle (in addition to the name of the article, and to any particular instructions for its use) a label giving notice that the contents of the bottle are not be taken internally.

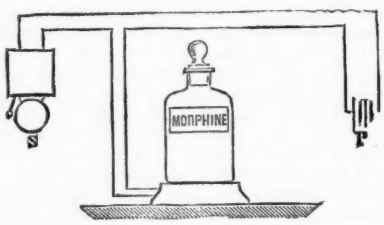
To judge by the numerous reports of poisoning by misadventure published in British journals, it would seem that these latter recommendations cannot be much regarded.

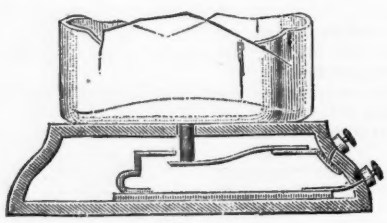
While there is no uniform custom adopted in this country, most pharmacists exercise caution, and to this end adopt one or another of the methods above enumerated or some system peculiar to themselves. For example: It having, with much justice, been claimed that *the* source of mistake is lack of attention on the part of the dispenser; that anything which distracts the attention from the work in hand is liable to result in mistakes, and that no system, however elaborate it may be, will guard against the blunders of one whose "wits go woolgathering," it has been the practice of some to keep poisons in the original containers, and stow them "helter-skelter" in drawers or closets by themselves, so that some little concentration of thought is required to find exactly what is wanted. A great disadvantage connected with system—if it may be so called—is the loss of time and the uncertainty which

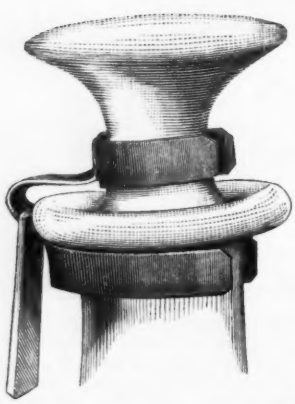
Bottle-cage.



Alarm-bell.




Electric signal.



Stopper clasps.

Puzzle-cap.

must exist as to whether certain articles are in stock, or whether the supply is exhausted.

Still others adopt the practice of placing the original package of each active poison in a porcelain jar and keeping these jars in a case by themselves, and at a little distance from the dispensing counter.

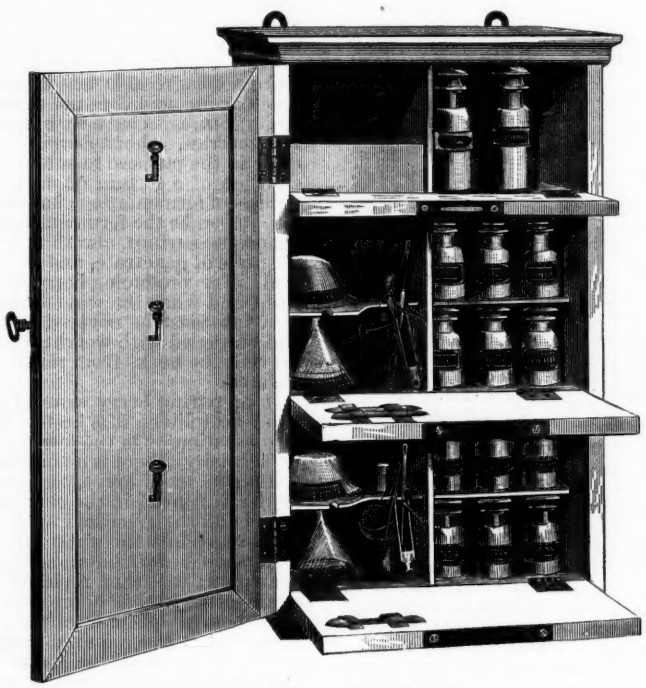
Much ingenuity has been shown during a few years past in contriving bottles which may be locked automatically in place or whose stoppers may be sealed with some contrivances which will insure more than ordinary attention to details in opening them. Still others are provided with an attachment which will ring an alarm either on the container itself or in some other part of the store. Illustrations of a number of these contrivances are shown in this connection, and there are many more having features more or less similar.

Albert Greenwood, of Maysville, Ky., patented a wire cage for inclosing a bottle so that it requires to be opened by liberating a catch before the bottle can be removed.

A German patent provides for a metallic case to be cemented to the bottom of a dispensing bottle, and containing a bell which will be rung by a loose clapper whenever the bottle is moved. In the device proposed by Fred. Stockton, of Wheeling, W. Va., a metallic spring clasp incloses the neck of the bottle, and holds the stopper in place until the clasp is removed by pulling upon the tag which depends from one side. Rather better than this is one of English origin, in which the attachment to the neck of the bottle is permanent, the stopper being unlocked by withdrawing a slide.

J. B. Howell, of Newton, N. J., is the patentee of a bottle-cap in which an interior spur or lug prevents the removal of the cap, unless it is rotated so that the lug follows the direction of the zigzag groove in the neck of the bottle.

Still another variety of apparatus is that of Schuch and Wiegel, of Berlin, in which raising the bottle from the base shaped to receive it forms a connection in a galvanic circuit, and this causes an alarm-bell to ring, or a colored disc or other signal to be displayed at the prescription counter, until the bottle is returned to its proper place. The latter would, of course, be the preferable arrangement, as it would avoid alarming customers.



Holbe's Poison Cupboard.

Lastly, the requirement of the German government that the most active poisons (those coming under Table B, above referred to) should be kept under lock and away from other articles, has been more or less adopted voluntarily in this country.

A cupboard intended for this purpose is the invention of Mr. Holbe, an apothecary of Berlin. As shown in the illustration, each set of poisons has a compartment by itself, together with the scales, spatulas, and other utensils required for their manipulation. Even when the outer door is opened, a separate key is required to get at the particular poison wanted.

Mr. Henry Biroth, of Chicago, has suggested a somewhat similar, but more capacious closet. In it are compartments capable of holding all the really active poisons met with in a pharmacy, although the case measures only twenty-seven inches high, twenty-four inches broad, and five inches deep. According to the inventor's arrangement, No. 1 holds all the original packages of morphine; No. 2, the preparations of morphine; No. 3, opium preparations; No. 4, the cyanides; No. 5, poisonous mercurials; No. 6, arsenicals; No. 7, strychnine and its poisonous compounds; No. 8, belladonna, aconite, gelsemium, and apomorphine; No. 9, the stronger acids and some miscellaneous articles, and No. 10, veratrum digitalis, codeine, veratrine, hyoscyamine, and other alkaloids.

It has been suggested that sulphate of morphine might be colored with some harmless substance which would prevent its being mistaken for sulphate of quinine, but this has not met with approval. In October, 1885, the editor of the AMERICAN DRUGGIST suggested that morphine might readily be compressed into a square or oblong disc, with a consistence which would admit of its being handled or transported without loss. Each of these cakes, as a matter of convenience, might be made to contain exactly ½ ounce. These might also, by the same process, be made to bear the name of the substance and of the manufacturer, so that any person able to read would recognize the nature of the article, and there would be little likelihood of its being mistaken for something else.

[To be continued.]

Tinctura Quillajæ N. F.

AT a recent meeting of the North British branch of the Pharm. Society, Mr. J. Rutherford Hill referred to the tincture of the U. S. National Formulary. During the process by which this is made, the soap bark is boiled with the menstruum. For a substance containing a glucoside, this process seems to Mr. Hill to be unscientific, and, as Mr. Boa has shown, saponin is under these circumstances changed. Mr. Hill had prepared two tinctures, one by the American process, the other by cold maceration and percolation. These were examined, and it was found that the tincture prepared in the cold yielded 4.28 per cent of extract, and 2.63 per cent of saponin. The American tincture gave 4.02 per cent of extract, and 2.30 per cent of saponin. A further percolation of the marc of the first tincture indicated that it was practically exhausted, but it was found that the American was incomplete. There was a popular impression, he said, that when heat was used the tincture froths and emulsifies better. Results show, however, that this is fallacious. On the whole the American process is tedious, the cold process shorter, and he suggested macerating and percolating with mixed spirit and water equal to the strength of proof spirit. The American strength of spirit is too low.—*Chem. and Drugg.*

Note.—While the primary object of the Tinctura Quillajæ of the N. F. was to furnish a good emulsifying agent, yet the note attached to the article, that "each fluidrachm represents 10 grains of quillaja," would leave it to be inferred that the tincture is supposed to contain all the useful constituents of the bark. This is, indeed, not the case, and our British critics are correct in pointing out the features which require correction. Meanwhile it may be noted that if the tincture is required for emulsifying purposes within a short time after being prepared, there is no objection to follow the process of the N. F. But if it is to be made for stock, it would be preferable to make it by percolating quillaja, in fine chips, with a menstruum composed of 1 volume of alcohol and 2 volumes of water, so as to obtain the intended strength of the tincture of the N. F.—ED. AM. DR.

Spanish Eucalyptus Oil.

THE *Eucalyptus globulus* Labill. is the one variety of the more than one hundred and sixty known varieties of the Australian Eucalyptus tree which has been widely acclimatized throughout Europe. In Spain this variety is being planted on a larger scale every year. In addition to the numerous ornamental eucalyptus plantations, and the trees planted in swampy neighborhoods for hygienic reasons, a land-owner in the province Valencia commenced to grow eucalyptus trees on a large scale for forestry purposes. At present he has under cultivation 17 hectares, or, say, 42 acres, containing about 40,000 trees, which at the age of between twelve and fifteen years are cut down every winter in the months of January and December, new trees being planted in their place in February and March.

On the Valencia plantations, the yield of oil from the leaves has been very insignificant; amounting only to between 1 and 3 cwt. per annum. A trial shipment of Spanish eucalyptus oil was consigned to London last autumn, and sold at 1*s.* 10¾*d.* per lb., a price at which distilling does not seem to pay. The distiller will not, therefore, send over any further shipments.—*Chem. and Drugg.*

Curwin's Hog-Powder.—G. C. Caldwell, of the Cornell University laboratory, reports the composition of a sample examined by him, to be: Moisture, 1.16; sulphur, 4.33; sulphate of iron (copperas), 4.55; sulphate of lime (gypsum), 6.89; chloride of sodium, 77.74; carbon, 3.53; silica, 1.64; phosphoric acid, a trace. That is to say, it is a mixture of salt, sulphur, charcoal, and copperas, for which the retail price of 25 cents a pound is rather high.

Wine from Berries and from Dried Grapes.

For the manufacture of a good domestic beverage different sorts of fruits, the residuum of pressed grapes, wine lees, berry fruits (also some kernel fruits, as cherries and plums), and dried grapes may be used.

WINE FROM BERRIES.

Currants and gooseberries yield almost every year a good crop, and even on a small area of land they furnish so much fruit that, by adding the necessary water and sugar, a great quantity of wine can be produced. Whortleberries are very abundant in some districts. The price of sugar being rather low, the expenses are but small. For 1 hectoliter (nearly 26½ gallons, wine measure) of good domestic beverage, sugar for only about $1.75 to $2 is wanted. Berries contain too little sugar and, with the exception of thoroughly ripe blackberries and sweet cherries, too much acidity. The acid must, therefore, be reduced and sugar added. If too little water is used the wine becomes too sour. The wine becomes stronger or weaker according to the quantity of sugar added. By adding too little sugar the wine becomes weak and not durable. The subjoined table shows the average contents of sugar and acid in the different sorts of fruit, and also the addition of water and sugar necessary for 10 liters of juice or 11 kilogrammes of fruit, in order to make either a weak kind of artificial beverage, a good table wine, or a liquor wine.

Fruits.	Contents in 100 parts of fruit.		Addition to 10 liters juice, or 11 kilogrammes of fruit.				
				Sugar—Kilogrammes.			
	Sugar.	Acidity.	Water - liters.	Domestic Beverage.	Table Wine.	Strong Wine.	Liquor Wine.
Currants	6.4	2.1	30	4.2	5.8	7.4	1.3
Gooseberries	7.0	1.4	18	2 7	3.7	5.1	8.8
Blackberries	4.0	0.2	—	0.8	1.2	1.6	3.0
Whortleberries	5.0	1.7	24	3.6	5.0	6.3	11.0
Raspberries	3.9	1.4	18	3.0	4.1	5.2	9.1
Strawberries	6.3	0.9	8	1.6	2 3	3.0	5.5
Red Bilberries	1.6	2.3	35	5.3	7.1	8.9	15.2
Agriot Cherries	7.5	1.3	16	2.4	3.4	4.5	8.1
Sweet Cherries	10.0	0.4	—	0.2	0.6	1.6	2.4
Plums	6.1	0.8	6	1.3	2.0	2.6	4.8

From the stone fruits the stones are to be removed before weighing them, and before fermentation takes place. Strawberries, gooseberries, blackberries, and agriot cherries are particularly qualified for strong and fine wines. For the purpose of washing the berries and removing the stones, the fruits may be grated through sieves, the holes of which are small enough not to allow the passing through of either berries or stones. Then the mashed fruits are to be pressed out or soaked in water, as will be described below. The latter proceeding is, of course, only possible with fruits which require a large quantity of water. During the process of mashing and pressing the fruits, great care is necessary to prevent the contact of iron with the juice, as even very insignificant particles of it will give a bad taste and muddy color to the wine. Iron wine-presses and the lower part of the spindles are to be painted with iron varnish. In order to avoid the solution of iron the soaking out of the residuum of grapes is to be preferred to the pressing. Sieves made of brass are preferable, but must be kept very clean. The riper the fruits the better the wine will be. Rotten fruits must be removed as much as possible.

Fermentation will be quicker the nearer the degree of heat is to 30°, but the danger of the formation of the acetic acid, lactic acid, slime, etc., increases with the heat. If the residuum is not kept in the liquid, it often grows very hot by contact with the air, and injurious decompositions are formed. The more favorable degree of heat for fermentation is 15° to 20° C. (12° to 16° R.).

Berries picked in the hot part of the day are warm, and if gathered in large quantities in receptacles they often become very hot. In these warm, partly already injured berries, an alteration can take place which is injurious to the wine produced therefrom. Such fruits which ripen in summer should, for this reason, be picked in the morning or evening, or on a cool day. In no case should they remain for any length of time in large, filled-up receptacles.

If the mash is too warm, it ought to be brought to the correct degree as soon as possible, by adding cold water. There are cases where great quantities of grape-wine were spoiled only because the grapes, though of very good quality, had been harvested in the heat and transported a long distance. In those years in which the grapes are harvested in very warm weather, there are always more poor wines than when the grapes are cool before they are put into the tubs. It has been observed that fermentation does not commence soon if the berries are picked soon after rain.

If the alcoholic fermentation at the correct degree of heat does not sufficiently commence within twenty-four hours, there is danger that mucilage or lactic acid will be formed, or, in case of slow fermentation, even vinegar formation. The fermentation can be produced by adding compressed, artificial dry yeast, or fluid corn yeast, 50 grammes of the former or ¼ liter of the latter to 1 hectoliter. These are in the first place added to 1 part of the mixture of sugar, water, and juice or mashed fruits. As soon as this is in good fermentation, it is mixed with the rest of the mash. As a matter of course, only the very best and freshest of yeast is to be used. Yeast of beer is of no use.

One of the great difficulties in preparing berry wines is caused by a too slow and often incomplete fermentation. This is produced either by the mash having been filled into a barrel smoked with sulphur, or by the formation of acetic acid at the beginning of fermentation, or, also, by the berries not containing sufficient nutritious matter in proportion to the yeast necessary for the fermentation of the sugar.

Fermentation will be greatly accelerated by adding currants or raisins, or cristated currants to the mixture of berries or their juice with sugar-water. From 1 to 2 pounds of currants or raisins may be added to 10 liters or 11 kilogrammes of fruit. They must be quickly washed with cold water, then cut, added to the mixture of juice and sugar-water, and left therein during fermentation. For 1 pound of raisins, 1½ liters more of water may be added.

The air is to be carefully excluded from the surface of fruits left standing after having been either lyed or washed, and also during or after the process of fermentation, else a part of the alcohol will turn into acetic acid, causing the wine to remain muddy or slimy, and to acquire a disagreeable taste. Besides this, wine containing much acetic acid does not agree with many persons. Generally, but especially with fleshy or slimy fruits, such as gooseberries, whortleberries, cherries, plums, etc., it is quite to the purpose to submit the mashed fruits, with an addition of a certain quantity of water and sugar, to the process of fermentation; but this requires great precaution, for as soon as the fermentation commences the husks will get on the surface, and thus form a loose mass into which the air will penetrate, and in a short time produce acetic acid. For producing berry wines or red wine on a large scale, and when the wine ferments on the husks, the mash in a tub must be covered with a perforated tub-bottom and burdened with weights or tightly fastened in order to prevent the husks from rising, and then the whole may be covered.

In preparing berry wine on a small scale, but yet up to 1 to 2 hectoliters, it is best to use vessels of stoneware for fermentation. On the lower part of these vessels (as used in Germany) there is a sink-bottom and the mashed fruits contained in it are again covered with a similar one. Water is poured in the channel on the upper part of the vessel and the cover laid upon it. The border of the cover must reach into the water and entirely exclude the air.

As soon as fermentation has commenced, the liquid is drawn off; it is then replaced by sugar-water, poured off again after twelve hours, water is first poured on it and then poured off again after a lapse of time. This is repeated until the required quantity of water is spent. If correctly executed, the husks are so thoroughly washed that it is altogether useless to press them. In the fluid collected in a tub or bottle, the corresponding quantity of sugar not yet used is dissolved. Wines of blackberries, strawberries, sweet cherries, and other fruits for which little water is used, may be left in these vessels until fermentation is completed. For the fermentation of fluids, vessels of glass may be used to advantage. Such air-tight vessels have been tried repeatedly and proved excellent. Grape and berry wines remained in a warm room in partly-filled vessels, without being in any way injuriously affected by the air.

The family (home) beverage and the table wine must, as soon as fermentation ceases, be drawn off the lees and filled into a slightly sulphurated tub. The strong wines and liquor wines may be left on the lees until they are quite clear, and then they are likewise to be filled into a slightly sulphurated tub, but they are bottled only when they do not thicken or ferment any more.

For the preservation of wines in bottles intended to stand, bottles with patent wire locks are to be selected, or else, after the tops of the corks are cut off, and when quite dry, the heads of the bottles must be dipped into hot paraffin.

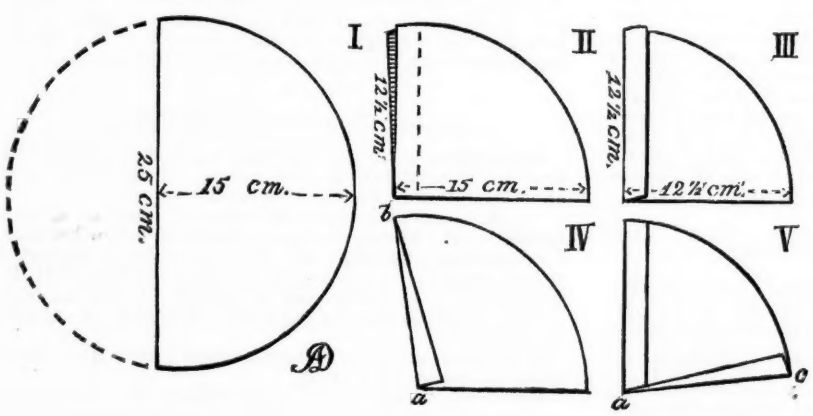
DOMESTIC BEVERAGE FROM RAISINS.

One hundred kilogrammes of raisins are placed in a tub and cold water enough is poured over them just to cover them. After the lapse of twenty-four hours, the fluid is to be drawn off in a tub. The now sufficiently soaked raisins are then pounded or pressed through a sieve provided with such wide holes that whole berries cannot penetrate; water is then poured over them, and removed after twenty-four hours. This is to be repeated until 4 or 5 hectoliters of water are collected in the tub, according to the strength wished for the beverage. The fluid is then left to ferment. The most favorable degree of heat for this is 15° to 20° C. (12° to 16° R.); a much higher or lower degree is to be avoided. If fermentation does not begin within twenty-four hours, then 100 Gm. of good compressed yeast, or ¼

liter of good liquid grain yeast are to be added to the hectoliter. Yeast of beer is not fit for use, but from 1 to 10 liters of yeast from good wine may be added to 1 hectoliter, provided it be very fresh and the wine has not been drawn off from it too late, at least in the beginning of February. Old, and especially slimy wine yeast is to be carefully avoided, as it would make the beverage slimy and not clear. As soon as fermentation ceases, the beverage is to be drawn off from the lees and put in a tub slightly sulphurated, one slice for 10 hectoliters.

If the beverage is desired to be a little astringent, which would render it more refreshing, 100 grammes of tartaric acid would have to be dissolved in a hectoliter. In the season of currants, to 100 kilogrammes of raisins about 10.15 kilogrammes, or to 1 hectoliter of domestic beverage before, at, or after the fermentation, 3.4 kilogrammes of mashed berries, or 3.4 liters of juice of currants may be added. In a similar way sour grape wine or cider, or mashed ripe and green apples (fruit fallen off the trees), or their juice, may be used.

The greatest cleanliness is to be observed in regard to all the vessels or receptacles into which currant wine or domestic beverage is put. The air is to be kept off carefully from the surface of the water on the raisins and from the fermenting and fermented fluid. The tub is to be covered with a lid; the bunghole is to be closed with a clean sand-bag, as long as fermentation lasts, and then by a well-fitting bung. Store barrels must be kept full as much as possible, and must be bunged up with bungs of acacia or oak wood, reaching at least 15 centimeters into the cask. Wrapping the bungs and corks in rags is to be avoided. For barrels on tap, fungus guards must be used, or the bung, after each drawing off, must be firmly fastened again. All bungs must be kept free of mould, fungi, or other injurious mushrooms, which, especially after this, are apt to spread over the beverage or wine. For this purpose the bungs are now and then to be dipped into spirits of wine, entirely free of bad liquor, or, better yet, into a solution one part of bisulphite of calcium, which may be kept in the cellar ready for use in a bottle with glass stopper.—E. JOHNSON, in *U. S. Consular Reports.*



IMPROVEMENT IN PAPER FILTERS.

MR. EDO CLAASSEN describes, in the *American Journal of Pharmacy* for February, an improvement in construction of paper filters which effects an economy of two-fifths in the paper necessary—an item of some moment when the finest grades of paper are used—and increases the rapidity of fitration, since but a single thickness of paper is employed. [This is not in accordance with the general belief that filtration is more rapid through a double than through a single filter.—ED. AMER. DRUGG.] His directions are as follows:

Patterns (corresponding with the size of the filters wanted, for instance with such having a radius [semi-diameter] of 12½, 17½, 22½, 27½, 32½, 37½, 42½, 50, 60, 80, and 100 centimeters) are constructed from circular discs of tinned sheet iron of the same size, by cutting off somewhat more than one-half of the disc (see Figure 1), through a point distant from the edge 15, 21, 27, 33, 39, 45, 51, 60, 72, 96, or 120 centimeters. The small section of the disc, if of no use for smaller patterns, may be rejected. Such a pattern is placed on a sheet of paper, a piece of which is then cut off by allowing the scissors to go around on the edge of the tinned iron. This piece is now folded once in such manner that one part entirely covers the other (Figure 2). It is then folded so far on the straight open side that both the straight sides now presented are of equal length. The narrow-folded side (2½ centimeters in the case of the smallest size mentioned) is folded once more, after which the filter is ready for use. If the funnel has a wider angle than 60°, the filter may be made to fit by folding the narrow part in the direction from *a* to *b* (Figure 4): if, however, the angle of the funnel be smaller than 60°, the filter may be made to fit by folding the *closed* side in the direction *a c* (Figure 5).

Soldaini's Reagent for Glucose.

THE Committee on Sugar of the Association of Official Agricultural Chemists, at their last meeting presented a report, through Prof. Stubbs, in which, among other interesting matters, the methods for determining invert sugar [fruit-sugar; equal molecules of dextrose (or glucose) and levulose] were discussed. It was pointed out that Fehling's solution and all reagents of similar composition were affected by the drawback, that they are not only reduced by invert sugar, but also by dextrin, and sometimes even by sucrose (or saccharose, that is, pure cane-sugar). After a certain time, they undergo alteration (if kept mixed), depositing oxide of copper, especially if exposed to light.

Attention was then directed to a reagent, proposed by Soldaini, for the determination of invert sugar (and of course for glucose in general), which does not possess these objectionable qualities, at least so says Degener, who has studied carefully its properties.

This liquid is prepared, according to Degener, in the following manner:—40 Gm. of sulphate of copper are dissolved in water, and in another vessel, 40 Gm. of carbonate of sodium are also dissolved in water. The two solutions are mixed, and the copper precipitated in the state of hydrobasic carbonate according to following equation:—

$$2CuSO_4 + 2Na_2CO_3 = CuCO_3\,CuOH_2O + CO_2 + 2Na_2SO_4.$$

Copper sulphate. Sodium carbonate.

The precipitate is washed with cold water and dried. This precipitate (15 Gm.) is added to a very concentrated and boiling solution of bicarbonate of potassium (about 415 Gm.) and agitated until the whole is completely, or nearly, dissolved; water is added to form a volume of 1,400 C.c., and the whole mass heated for two hours upon a water bath. The insoluble matter is filtered off, and the filtrate, after cooling, is of a deep blue color, and has a density of about 22.5° Beaumé (spec. grav. 1.185). The sensibility of this liquid is so great that it gives a decided reaction with 0.0014 Gm. of invert sugar. The presence of sucrose in the solution renders this sensibility still more delicate.

Ammoniacal salts are not hurtful to the reaction, but they do sometimes retain in solution a slight quantity of copper.

It is then indispensable to boil the solution for five minutes at least in order to drive off ammonia. The quantitative test for sugar is made in the following manner: 50 C.c. of Soldaini's solution are boiled for five minutes upon a water-bath, and 15 C.c. of the sugar liquid (containing 100 Gm. of matter in 100 C.c. of water) added, and boiled again for five minutes. After a rapid cooling the liquid is thrown upon a Swedish filter and washed with water until every trace of a blue color disappears. Then the paper is removed and the precipitate examined, which should be of a clear red color.

[The amount of cuprous oxide thus obtained may be estimated by modifying the process slightly in the following manner. Instead of using a Swedish filter, employ a Gooch perforated platinum crucible with prepared asbestos filter, which is dried, previous to use, to a constant weight. After the precipitate has been received upon it and completely washed, it is again dried to constant weight, and the increase of weight calculated as cuprous oxide. We would recommend this modification in case Soldaini's reagent should be used for determining glucose in urine, as the reduction of the cuprous oxide in a current of hydrogen, recommended in the succeeding, is probably inconvenient to the average analyst of urine. Or the end of the reaction may be determined by acidulating a few drops with acetic acid and testing with ferrocyanide of potassium.—ED. AM. DR.]

Rosenbaender and Schiller (*Zeitschrift des Vereins für Rübenzucker-Industrie*, 1887, p. 138) have determined the following quantitative process with this liquid: 100 to 150 C.c. of Soldaini's solution are placed in an Erlenmayer flask and heated for five minutes over a gas jet. A solution containing 10 Gm. of sugar (clarified with subacetate of lead if necessary) is added, and heated again for five minutes, always over a direct flame. This precipitates all the copper. Next are added 100 C.c. of distilled water, in order to cool the mass very quickly. The turbid liquid is filtered (preferably through a Soxhlet or Herzfeld filter) and washed with distilled water. This oxide of copper is reduced in a current of hydrogen and the copper is weighed in a metallic form, and this weight multiplied by 0.3546 gives the weight of invert sugar. By this method 0.01 per cent of invert sugar can be accurately determined.

Sidersky has recently offered a new volumetric method, based upon the use of Soldaini's solution. With sugars the same method as is now in use with Fehling's solution can easily be followed, watching the disappearance of the

blue color, and testing the end with ferrocyanide of potassium and acetic acid. This process offers no serious objections common to Fehling's solution, but is inapplicable to colored sugar solutions, such as molasses, etc. For the last the following is recommended: 25 Gm. of molasses are dissolved in 100 C.c. of water and subacetate of lead added in sufficient quantities to precipitate the impurities, the volume raised to 200 C.c., and filtered. To 100 C.c. of the filtrate are added 25 C.c. of concentrated solution of carbonate of sodium, agitated, and filtered again. 100 C.c. of the second filtrate, with excess of lead removed, is taken for analysis. On the other hand, 100 C.c. of Soldaini's solution are put into a flask of Bohemian glass and heated five minutes over an open flame. The sugar solution is now added little by little, and the heating continued for five minutes. Finally, the heat is withdrawn, and the liquid cooled by pouring in 100 C.c. of cold water. It is next filtered through a Swedish filter, washed with hot water, letting each washing run off before another addition. Three or four washings will generally remove completely the alkaline reaction. The precipitate is then washed through a hole in the filter into a flask, removing the last trace of copper. 25 C.c. of normal sulphuric acid are added with two or three crystals of chlorate of potassium, and the whole gently heated to dissolve completely the oxide of copper, which is transformed into copper sulphate, according to equation:

$$3Cu_2O + 6H_2SO_4 + KClO_3 = 6CuSO_4 + 6H_2O + KCl.$$

The excess of sulphuric acid is determined by a standard ammonia solution (semi-normal), of which the best indicator is the sulphate of copper itself. When the deep blue color gives place to a greenish tinge, the titration is completed. The method of titration is performed as follows: Having cooled the contents of the flask, a quantity of ammonia equivalent to 25 C.c. of normal sulphuric acid is added. From a burette graduated into one-tenth C.c., standard sulphuric acid is dropped in drop by drop, agitating after each addition. The blue color disappears with each addition to reappear after shaking. When the last trace of ammonia is saturated, the titration is complete, which is known by a *very feeble greenish tinge.* The number of C.c. is read from the burette, which is equivalent to the copper precipitated. The equivalent of copper is 31.7, and the normal acid equivalent is 0.0317 of copper. Multiplying the copper found by 3,546 we have the invert sugar. A blank titration is needed to accurately determine the slight excess which gives the pale green tinge. This process is to be highly recommended if experiments show it to be as accurate in our hands as it has in France.

The Composition of Creolin.

TH. WEYL has made an investigation of the new antiseptic, creolin, of which there are two brands in the market, and he has reported his results to the German Chemical Society.

We abstract the following from the *Berichte* (1889, No. 1).

Artmann's Creolin appears in form of a dark-brown, oily, syrupy liquid, having a strong but not disagreeable odor. On standing for some time, particularly when cooled with ice, hard, white crystals separate from it. These consist of *naphthalin.* They are sublimable, melt at 79–80° C. and boil at 216–218° C.

This brand of creolin is scarcely soluble in water, but forms an emulsion with it. It is easily soluble in alcohol, chloroform, and in a mixture of equal volumes of alcohol and ether.

In ether it is but little soluble, but this liquid dissolves the naphthalin and other hydrocarbons.

Pearson's Creolin behaves towards water, alcohol, and chloroform like Artmann's, but differs from the latter by being soluble in ether.

Weyl found neither carbolic acid nor nitrobenzol in Artmann's creolin. The nitrobenzol was tested for by attempting to reduce it to aniline. Pearson's product contains only very minute traces of carbolic acid; nitrobenzol was not tested for in this case.

Both products contain those portions of coal-tar which boil between 210 and 380° C., that is, mainly the hydrocarbons and phenols of the heavy oil and of the anthracene oil. The phenols are combined with soda. It is probably through these "phenolates" that the hydrocarbons are kept in solution.

The analysis of both products was carried out in the following manner:

Portions of 10 Gm. each are mixed with 200 C.c. of water, strongly acidulated with diluted sulphuric acid, well agitated, and then extracted with ether in a separating funnel.

The ethereal extract is treated with solution of soda. The separated alkaline solution is again treated several times more with small quantities of ether. The united ethereal extracts, which contain the *hydrocarbons*, are deprived of water by contact with calcium chloride, then filtered, the ether cautiously evaporated, the residue dried over sulphuric acid for twenty-four hours, and then weighed.

The alkaline solution is now again acidulated and shaken with ether. The ethereal solution (*a*), containing the *acids*, is first treated with soda solution, the aqueous portion removed, acidulated with sulphuric acid, and shaken with ether. The ethereal solution is deprived of water by chloride of calcium, the ether carefully dissipated, and the residue, after drying over sulphuric acid, weighed.

The ethereal residue left (see above *a*) from the treatment with soda solution contains the *phenols.* These are determined by dehydrating, carefully dissipating the ether, drying over sulphuric acid and weighing.

The soda in both creolins was determined in the following manner:

Weighed portions (about 3 Gm.) of each were carbonized in a platinum capsule, the residue moistened with sulphuric acid, and the excess driven off by heat, then carbonate of ammonium added, and the mass ignited to a constant weight.

Artmann's creolin yielded an ash containing much iron.

The following are the results of the analysis:

	Artmann.	Pearson (Jeyes).
Hydrocarbons	84.9	56.9
Phenols	3.4	22.6
Acids	1.5	0.4
Sodium	0.8	2.4

It will be seen that the two products differ considerably. The proportion of the phenols to the hydrocarbons in Artmann's creolin is as 1 to 25; in Jeyes' (Pearson's) creolin, 1 to 2.5.

Both products, therefore, have, aside of the name, but little in common.

The author adds: "It is self-evident that preparations of different composition must exercise unequal effects upon the organism. Moreover, the difference in the results has been abundantly demonstrated by my experiments, which belong before a medical audience [and which the author promises to publish soon]. The mode of preparing both products is kept secret by the manufacturers. Nevertheless, these products are used medicinally in spite of the fact that their composition (and they are by no means harmless nostra) has not been sufficiently determined."

Testing Phenacetin for Antifebrin.

HIRSCHSOHN gives the following method to detect the presence of antifebrin in phenacetin—which seems to be an adulteration repeatedly observed.

On shaking antifebrin with water of about 15° C. and adding to the filtrate an equal volume of bromine water, the liquid loses its color, and there are crystals separated which probably consist of parabrom-acetanilide, $C_6H_4Br.NH.CH_3CO$. If phenacetin is treated in this manner, neither disappearance of color nor formation of crystals is observed.

It is this reaction or behavior upon which Hirschsohn bases his method of testing.

Experiments showed that, when phenacetin contains 20 per cent of antifebrin, the color is at once discharged and crystals are formed. If only 10 per cent of antifebrin are present, the color is not discharged at once, but crystals make their appearance. In presence of 5 per cent, the color remains, but crystals form after five minutes.

The reaction may be rendered more delicate by adding only one-half volume of bromine water to one volume of the filtrate.

[Less than 5 per cent of antifebrin will probably escape this test.]—After *Pharm. Zeit. f. Russ.*

Alteration of Morphine.

ON the changes which morphine undergoes, Lama makes the following statements (in *Bull. Acad. roy. de Méd. de Belge*):

1. Solutions of morphine in redistilled water, kept from air and light, keep indefinitely. If cloudiness occurs, this is due to the formation of micro-organisms. A yellow color, acid reaction, and the separation of crystals are caused either by light or by organized ferments. The yellow color is caused by the transformation of morphine into an amorphous substance, which appears to be the morphetin of Marchand. Crystals are produced by the oxidation of morphine to oxymorphine (that is, "oxydimorphine").

The acid reaction is caused by the generation of morphetin, and of the salts of oxydimorphine. In aqueous solutions of salts of morphine no apomorphine is produced.

2. In the circulation, morphine is oxidized to oxydimorphine, and the latter eliminated by the urine. As this oxidation is not always perfect, unchanged morphine is sometimes found in the urine. In cases of poisoning, therefore, oxydimorphine should first be looked for.—*Mag. of Ph.*

Miscellaneous Formulæ.

THE following are taken from the private formula book of an old pharmacist:

Sachet Mixture.

Coriander	4 oz.
Orris Root	4 "
Rose Leaves	4 "
Lavender Flowers	2 "
Mace	½ "
Cinnamon	½ "
Cloves	½ "
Calamus	4 "
Tincture of Musk	30 min.

Comminute the solids, sprinkle over them the tincture and inclose in bags which are to be well sewed.

Dr. Rush's Dentrifice.

Cinchona, powd	4 parts.
Charcoal, powd	4 "
Myrrh, powd	2 "
Bitartrate Potassium	1 part.

Woodhouse's Indelible Ink.

Nitrate Silver	1 tr. oz.
Infusion of Nutgalls	120 min.
Acacia	120 gr.
Water	8 fl. oz.

Dissolve the nitrate of silver in 4 fl. oz. of water. In the remainder of the water dissolve the acacia and add the infusion. Then mix the two liquids. The infusion of nutgalls is made by pouring 1 oz. of boiling water upon 30 grains of powdered nutgalls.

Lacquer for Brass.

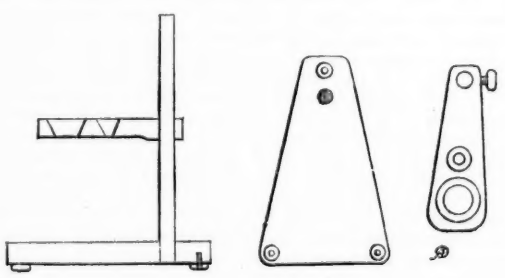
Turmeric, powd	1 tr. oz.
Annatto, best	½ "
Saffron, Spanish	½ "
Shellac	3 "
Alcohol	16 fl. oz.

Digest the first three ingredients with the alcohol for twenty-four hours, then dissolve the shellac in the liquid.

Cologne.

Oil Bergamot	630 min.
" Neroli	80 "
" Rose	60 "
Musk	10 gr.
Tinct. Vanilla	120 min.
Extr. Jasmin	630 "
" Violet	630 "
Deodorized Alcohol	7 pints.
Water	10 fl. oz.

Mix the oils and extracts with 6½ pints of deodorized alcohol, digest the musk with the remaining half pint at a gentle heat, in a closed bottle, for twenty-four hours, then add to the other liquid, add the water, cool, and filter. If convenient, set aside for some weeks before filtering.



Administration of Sulphonal.—Peter Boa, in a paper recently read on this subject before the Edinburgh Chemists' Assistants' Association, says: It may be worth noting that a little spirit and water seems the best vehicle for sulphonal. Any convenient spirit may be used, such as brandy, whiskey, or tincture of cardamoms. From a teaspoonful to a tablespoonful, according to the size of the dose of sulphonal, should be put into a wineglass, and the dose of sulphonal added. The sulphonal sinks, and when water is added and the mixture stirred, it diffuses beautifully. With water only it persistently floats.

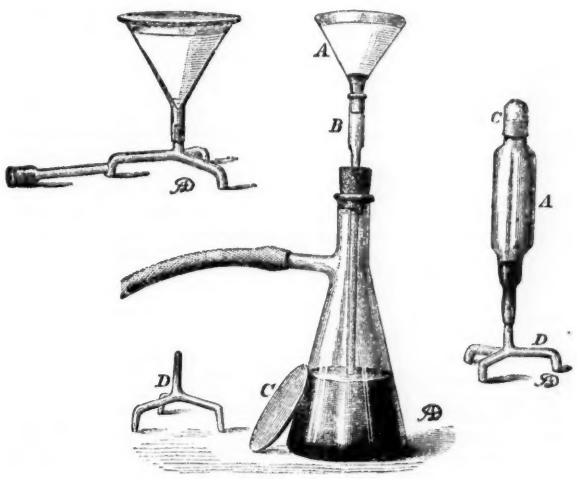
Note on Male Fern.—Dr. de Man publishes, in the *Therapeut. Monatshefte*, some important notes on the use of male fern, confirming the statements made some months ago by Professor Gerhardt. The principal requirement seems to be to give larger doses of the remedy in cases of tape-worm than have hitherto been considered sufficient. In twenty-seven cases which the author records, all succeeded, the extract being taken in some cases in quantities from ½ up to 5 drachms, or even 1 oz., in single doses. Of course, precautions have to be taken, as poisonous symptoms may sometimes supervene.—*Chem. and Drugg.*

APPARATUS FOR WEIGHING UPON TARED FILTERS.

ONE of the inconveniences of weighing upon tared filters consists in this, that the filter (if a paper one) must be taken out of the funnel, and either put between watch-glasses or into a special weighing bottle, since it is impossible to make correct weighings when the filter is exposed to the air.

The apparatus devised by Prof. de Koninck, of Liege, does away with this drawback. It consists of a very thin and light funnel A, the exit-tube of which, which is thin and short, is ground into the upper part of the tube B. This arrangement permits the funnel being connected with the filter-pump. As soon as the filtration and the washing of the precipitate upon the filter is completed, the funnel with filter is removed to a drying oven, then covered with a glass-plate C and allowed to cool in the exsiccator. Finally it is placed upon the tripod D, whereby the access of air to the neck is at the same time prevented, and the whole weighed.

The same principle may, of course, also be used, when filtering through glass-wool or asbestos. In this case, the filtering media are preferably put into funnel-tubes which may be closed with a ground cap.—After *Zeitsch. f. angew. Chem.*, 1888, 689.



IMPROVED FILTER-STAND.

THE following paper by D. E. Dott was recently read before the Society of Chemical Industry, at Edinburgh:

While great improvements have been effected on the finer kinds of laboratory apparatus within the past few years, and instruments of precision have been carried to great perfection, the simpler yet essential appliances have been rather neglected. Among these latter may be counted filter-stands. As ordinarily constructed, they have three principal defects. Firstly, they are made to stand on a flat wooden base, or, what amounts to the same thing, they are made to stand on their feet; whence it results, either from an original defect in the workmanship or, more often, from the wood having warped, that the apparatus stands unsteadily. With such a filter-stand one frequently finds that just as the filter is being filled, on account of the alteration in the centre of gravity of the system, there is a sudden jerk, by which some of the liquid is thrown up on the sides of the funnel; and generally there are all the inconveniences of a shaky piece of apparatus. Secondly, the opening in the arm for the support of the funnel is always either too large for small funnels or too small for large funnels. Thirdly, the openings are rarely made at the proper angle of 60°, but are more often simply cut straight through, with perpendicular sides, the result being that the funnel has a tendency to fall to one side.

The filter-stand illustrated has been devised to remedy these defects. As is done with optical instruments, it is made to stand on three feet to insure steadiness. Stability can never be relied on in a four-footed instrument, as even although it is truly made, the least irregularity of the table will render it unsteady. The arm has been pierced with two holes, so as to make it suitable for both large and small funnels, and the bevelling of the holes has been done as nearly as possible at the correct angle. Filter-stands should never be varnished. The tendency of varnish is to cause the movable parts to become fixed, and it is besides acted upon by many of the solutions in constant use. The best plan is to rub over all wooden apparatus with a little boiled linseed oil, which sufficiently preserves the wood, and renders it non-absorbent.

Bouchardat's Gout Pills.—Compound extract of colocynth, 20 parts; extract of colchicum, 20 parts; extract of opium, 1 part. Make into pills weighing 15 centigrammes [2⅓ grains] each.

The True Color of Bodies.

THE true color of bodies, M. Govi thinks, is in many cases unknown to us. In a communication read, on October 11th, before the Academy of Sciences, he attributed our ignorance to the imperfect nature of sunlight, which lacks several colors—that of the sodium rays, for instance, being absent from the solar atmosphere. When biniodide of mercury or minium is viewed under sodium light, both still appear of a bright yellow hue, while under the ordinary orange portion of the spectrum they are quite black. Biniodide of mercury and vermilion, both sensibly alike in sunlight, are, in sodium light, the first bright yellow and the second dark brown. In the same manner M. Govi thought bodies now considered black would prove to have a color of their own could they be viewed under a proper light; and it is only when we have a complete light, representing the whole spectrum, that we shall be able to really know the true color of bodies. The foregoing is a brief outline of the paper read before the meeting, but it is to be published in full in the *Comptes Rendus*, and will no doubt prove of no little scientific interest.—*Chem. and Drugg.*

Assay of Chloral-Hydrocyanate.

CHLORAL-HYDROCYANATE has been recommended some time ago as a substitute for hydrocyanic acid or cyanides in medicine, as it is of constant composition, perfectly stable and manageable, and readily assayed. In our judgment, this substance really deserves the attention of the medical profession, and ought to find speedy introduction.

There is at present an argument being carried on between several authorities, on the best method of assaying the compound.

Utscher recommended methods involving the use of a silver salt and of iodine, but Scharges found that by these methods he obtained results ten per cent lower than could be obtained by converting into sulpho-cyanide of copper. The latter author also found that when chloral hydrocyanate is heated with caustic alkali and alcohol, *isonitrile* is formed, which is easily recognized by its penetrating, characteristic odor. Besides, some ethylamine is also produced as an intermediary product, and further on carbylamine. Moreover, the author points out that the cyanide of potassium which is formed from the chloral hydrocyanate by the reaction with the caustic alkali is partly decomposed into formate of potassium and ammonia, when its aqueous or alcoholic solution is warmed. Hence, a portion of the cyanogen is destroyed, and escapes the assay with silver salt and iodine. For this reason the author prefers the estimation of the cyanogen as sulphocyanide of copper.

Chloral-hydrocyanate is otherwise known as the nitrile of trichloracetic acid: $CCl_3.CH(OH).CN$. Every 100 parts of it correspond to 15.5 parts of anhydrous hydrocyanic acid. The substance is very soluble in water, alcohol, and ether, and it is very stable, both in the dry form and in solution. While passing through the body it is decomposed, exerting the full physiological effects of the proportion of hydrocyanic acid contained therein. If it is desired to prepare a solution corresponding in strength to the officinal hydrocyanic acid (of 2 per cent HCN), 12.9 parts of chloral hydrocyanate are dissolved in enough distilled water to make 100 parts. A "bitter-almond water," equivalent to that of the German Pharmacopœia, may be prepared by dissolving 6.5 parts of the salt in enough distilled water to make 1,000 parts.

Systematic Examination of Sulphate and Hydrochlorate of Quinine.

THE examination of these quinine salts has caused quite a number of processes to be devised, but not one of these can be relied upon in furnishing a positive answer regarding the purity of these salts. To frame a method which allowed the presence or absence of the more frequently occurring impurities, such as quinidine, cinchonine, and cinchonidine, to be proven in a simple and comparatively rapid manner, the majority of the published processes were carried out and their merits and defects ascertained; as the result, the following compilation has been found to work successfully.

A.	*For Sulphate.*	*For Hydrochlorate.*
	1 Gm. with 15 C.c.	1 Gm. and a solution of 0.4 Gm. sodium sulphate in 1 C.c. water, with 30 C.c.

of distilled water are agitated for five minutes, and filtered. To the filtrate is added 0.5 Gm. Rochelle salt, agitated for five minutes, allowed to stand five minutes and filtered; the precipitate of tartrates is collected on a small filter and reserved, the filtrate for the

B. Detection of quinidine and cinchonine is divided into two portions, one of which is reserved; to the other add one drop of water of ammonia, and allow to stand for a few moments.

1. The solution remains clear; absence of quinidine and cinchonine; proceed *E.*

2. The solution becomes turbid; presence of quinidine and cinchonine, or both; proceed *C.*

C. Detection of Quinidine. To the reserved portion (see *B*), add 0.5 Gm. KI, shake for five minutes, allow to stand for same time. Result:

1. The solution remains clear, if quinidine is absent; proceed *D.*

2. The solution becomes turbid or deposits resinous precipitate. In this case cinchonine must first be tested for, according to *D*, and then

a. In absence of cinchonine, the turbidity with KI indicates the presence of quinidine; proceed *E.*

b. In presence of cinchonine, the ammoniacal solution in *B* is filtered, the precipitate washed with distilled water and the thalleioquin reaction * carried out with the precipitate. If the intense green color is produced, there is quinidine present; if the green color is not produced, quinidine is absent. Proceed *E.*

D. Detection of Cinchonine. The liquid after addition of KI is filtered, and one drop water of ammonia added; set aside for a few minutes; there results:

1. Perfectly clear solution, in absence of cinchonine. Proceed *E.*

2. Turbid solution, if cinchonine is present. Proceed *E.*

E. Detection of Cinchonidine. If in the foregoing examination cinchonine or quinidine is found, the precipitate of tartrates (see *A*) is carefully washed with 15 to 20 C.c. Rochelle salt solution (1 to 20); were these alkaloids not found this washing is superfluous. The precipitate is dissolved off the filter by use of 3 C.c. dilute H_2SO_4 (1 to 20); to the solution, 2 C.c. ether and 1 C.c. water of ammonia are added; the mixture is well shaken for one minute and allowed to stand at rest five minutes. This shaking and allowing to stand is repeated several times (the time allowed not to exceed a half-hour). Notice:

1. The ethereal layer and the sides of the test tube remain perfectly clear in absence of cinchonidine.

2. The ethereal layer and the sides of the test tube become cloudy, if cinchonidine is present.

Remarks referring to Quinine containing Quinidine. By this method one-fourth or one-half per cent quinidine cannot be detected. Often 1 or 2 per cent quinidine will give no reaction with KI, but its presence can be ascertained by the addition of water of ammonia, which is a more delicate test. In the examination of quinine with 10 per cent quinidine nothing extraordinary is noticed, but in presence of 15 per cent and more of this alkaloid it is noticed on addition of Rochelle salt that the tartrates are not precipitated; this does not, however, interfere with the further detection of quinidine. Should more than 15 per cent quinidine be suspected, more KI must be used, otherwise it must be feared that the quinidine is not thoroughly precipitated and, later, may be mistaken for cinchonine. As a large percentage of quinidine prevents the separation of the tartrates and, as was found by special experiments, quinine sulphate mixed with quinidine sulphate is more difficultly soluble than the pure salt, there appears to exist a dependency between the two alkaloids.

Remarks referring to Quinine containing Cinchonidine. One-half per cent of cinchonidine is easily detected within half an hour. Should the per cent of cinchonidine be so minute that a precipitate cannot be clearly distinguished, absence of the alkaloid must be decided, as the reaction is so characteristic that there can absolutely be no mistake. With 1 per cent the reaction is more decided; with 2 per cent there appears a deposit in the ether. Cinchondine is recognized by the capillary rising of the precipitate beyond the ethereal layer, immediately after shaking the solution. Care must be exercised that not every slight turbidity at the line of contact of the two liquids be pronounced as cinchonidine, only in case the precipitate is capillarily attracted by the side of the test tube can there be no doubt regarding its presence. If the quinine contains 10 per cent cinchonidine, there appears at the line of contact of the two liquids a white cretaceous ring. Cinchonidine, in the absence of quinine, is separated as a white precipitate in the ethereal layer.

Remarks referring to Quinine containing Cinchonine. One per cent cinchonine is easily recognized; the more cinchonine present in the quinine the greater the precipitate with water of ammonia. When more than 5 per cent cinchonine is present, there forms on addition of KI a turbidity of cinchonine hydriodate which can easily be mistaken for separated quinidine; 10 per cent causes a precipitate of a tenacious character similar to quinidine hydriodate.—C. HIELBIG in *Pharm. Zeitsch. f. Russl.;* after *The Analyst.*

Alstonia Constricta in place of Hops.—Merck states that there is much demand for the bark of *Alstonia constricta* for use in foreign breweries, where it is used as a substitute for hop bitter in the preparation of pale ale for export. It is said to produce neither headache nor the other unpleasant symptoms caused by the hop bitter.

* Excess of chlorine water prevents the thalleioquin reaction, while excess of ammonia favors it.

THE

American Druggist

AN ILLUSTRATED MONTHLY JOURNAL

OF

Pharmacy, Chemistry, and Materia Medica.

VOL. XVIII., NO. 3. WHOLE NO. 177.

FREDERICK A. CASTLE, M.D. ..... EDITOR.
CHARLES RICE, PH.D. ..... ASSOCIATE EDITOR.

PUBLISHED BY

WM. WOOD & CO., 56 & 58 Lafayette Place, N. Y.

SUBSCRIPTION PRICE per year, - - - - - - $1.50
SINGLE COPIES, - - - - - - - - - - .15

Address all communications relating to the business of the AMERICAN DRUGGIST, such as subscriptions, advertisements, change of Post-Office address, etc., to WILLIAM WOOD & Co., 56 and 58 Lafayette Place, New York City, to whose order all postal money orders and checks should be made payable. Communications intended for the Editor should be addressed in care of the Publishers.

The AMERICAN DRUGGIST is issued in the latter part of each month, dated for the month ahead. Changes of advertisements should reach us before the 10th. New advertisements can occasionally be inserted after the 18th.

REGULAR ADVERTISEMENTS according to size, location, and time. Special rates on application.

EDITORIAL.

WE are frequently requested by correspondents to indicate to them some special source of information on some particular subject, as for instance, when some one desires to learn all about the chemistry, properties, and uses of nigrosine, or the manufacture of yeast, or certain kinds of essential oils, and an endless variety of other subjects. In giving the desired information, we always aim at mentioning those works which, in our judgment, give the fullest and most recent account of the subject. It happens sometimes that our correspondents send back word that the books we have mentioned are of no use to them, as they cannot read them, being in foreign languages, and they ask us to name others, printed in English. Now, regarding this, we would like to say that we always prefer to give to our inquirers, *first*, the titles of English printed works, provided there are any known to us which just cover the subject inquired about. It is not always possible to find equally good works, in different languages, treating of the same subject. If any one really wants reliable information, he should not go to second or third class authorities, but only to those of the first class. And if the latter happen to be written in a foreign language, the inquirer should assume the task of finding some one who, either as a favor or for money, shall translate for him such passages as may be required. There are many subjects on which, just at this moment, there are more exhaustive works in English than in other languages (as for instance, on the manufacture of steel, on mineralogy, etc). Again, there are subjects on which the best works are in German. Indeed, there are many in this language which are indispensable as works of reference, and which scientific workers cannot afford to do without (for instance, Beilstein's "Handbuch d. Organischen Chemie," Kick u. Gintl, "Technologisches Lexikon," etc., etc.). And so it is with French literature and others. We would not deem our advice as being of any benefit, if we were to restrict ourselves always to English works. Sometimes we hear the remark made: "What is the use of putting foreign works in one's library? The English literature is surely of rapid enough growth and large enough to absorb and comprise all that may have been published in other languages, and is worth preserving." This is true only to a certain extent. That the facts of science and the results of historical research obtained in other countries will be incorporated into English literature is just as sure as that new facts and results first made known in English will eventually be published in other literatures. But neither is this reciprocal process always very rapid, nor are the depositories of the matter always very accessible or convenient. If *one* work can be pointed out in any one language which comprises *all* that is known on a subject, so far as a particular inquirer needs it, *that* is the work for him to consult. He may possibly find the whole of the same information in works of another language, but he may be compelled to pick it together from a dozen or more volumes. The principle which guides us in this matter is the same which should be kept in view when collecting a reference library for one's personal use, viz., "Always get the most comprehensive, best, and most recent work on any subject, even though it be printed in a foreign language. Of course, *some* discretion as to foreign languages *must* be exercised. But so far as German, French, Italian, and Spanish is concerned, there will probably be little difficulty in obtaining help to read works printed in these languages.

IT has often seemed to us desirable for the interests of the pharmacists of this locality that there should be more general agreement with regard to the prices which may be charged with propriety for prescriptions. Every one agrees that a higher remuneration is proper for this class of product than for the mere sale of commodities which involve less responsibility, time, proficiency, and expense, and we think it will be readily granted, also, that the location of the store should have some influence, since the elements of rent and maintenance vary greatly between an establishment in a fashionable or choice business neighborhood and one located in the midst of less expensive surroundings. That such considerations do not always influence the dispenser, and that there is practically no uniformity in the basis for a charge, is unquestionably the case in many instances; and as an illustration we will mention one which lately came to our attention. A prescription for four ounces of Dobell's solution cost at one store 60 cents, it was refilled at another for 30 cents, and at still another at 15 cents. It can hardly be expected that the person who paid these varying prices should fail to consider that the first two were instances of egregious overcharging, since the one who charged but 15 cents was not likely to dispense a prescription for less than its value.

We will not undertake to say which of these three charges was the more nearly correct, but we will add that all three of the stores were in first-class neighborhoods; that the rental paid by the first two cannot be very different, and that the third was not known as a "cutter."

The point we wish to make is the desirability of securing greater uniformity upon *some* basis; since a disparity like the one we have mentioned is a source of injury to the entire profession.

A New Element Combined with Nickel and Cobalt.

SOME time ago, the cable announced that Dr. Krüss, of Munich, had succeeded in decomposing nickel and cobalt. The first authentic reports of the discovery have since then reached us, and from these we learn that nickel and cobalt still exist as elements, but that both metals have been found to be accompanied by a probably *new* element which has heretofore been entirely overlooked. Dr. Krüss made the discovery in conjunction with F. W. Schmidt, and the first report is contained in the *Berichte* (1889, 11), from which we abstract the essential parts.

The atomic weight of gold having not long ago been redetermined by Dr. Krüss with the utmost care, it was proposed to re-determine those of nickel and cobalt by means of a gold-salt. Without entering into minute details, it suffices to state that it was attempted to precipitate metallic gold from a neutral solution of the chloride by either a nickel or a cobalt salt. If this reduction took place quantitatively, one method of settling the atomic weights of the latter would be at hand. It was, however, found that there was always a loss which could not be accounted for by charging it to analytical errors.

After a solution of gold chloride had been reduced as far as possible by cobalt, the remainder of the solution

was treated with sulphurous acid to throw down the remainder of the gold. The latter was then washed, the first portion of the wash-water, containing chloride of cobalt, having a red color. This soon faded and passed over into a faint green tint. This portion was collected separately, evaporated, and ignited, when a small residue was left which dissolved in warm, concentrated hydrochloric acid with a fine green color. On cooling the liquid became almost colorless.

With nickel in place of cobalt, similar results were obtained.

In order to obtain larger quantities of the unknown substance, various experiments were made, and enough was finally obtained to serve for preliminary trials.

The authors are extremely reserved in their statements concerning the supposed new substance, as they do not wish to announce anything which has not yet been absolutely demonstrated, but they expect to be able in a short time to make a definite report.

Meanwhile they give an account of the peculiar properties of the substance, so far as reagents, etc., have permitted conclusions:

An acid solution of the chloride is not precipitated by hydrosulphuric acid; but a neutral solution, treated with sulphide of ammonium, throws down a blackish sulphide. Ammonia throws down from the chloride solution very voluminous white flakes, which resemble hydrated zinc or aluminum oxides. An excess of ammonia does *not* redissolve the precipitate.

Solution of potassa likewise precipitates a snow-white hydroxide, not soluble even in a large excess of the precipitant. This shows it is distinct from alumina. The strongly acid chloride solution possesses the peculiar greenish-yellow tint which first drew the attention of the observers to it. When perfectly dry and free from acid, the chloride is white and yields a colorless solution with water. If vapors of hydrochloric acid are allowed to come in contact with the white chloride, it again assumes a greenish tint and yields a tinted solution with water.

The metal (element) was obtained from the chloride both by electrolysis and by reduction with hydrogen. It had a black color; in thin sheet, brownish-black, and is easily soluble in acids, if separated in the cold by electrolysis; much more difficultly, however, if reduced, in a current of hydrogen, at a red or white heat.

New "Cocaines."

As already annonnced in a previous issue, Alfred Einhorn has succeeded not only in making cocaine, the alkaloid of coca leaves, artificially from benzoyl-ecgonine, by introducing into it the methyl group, but he has also found that a whole series of other "cocaines" may be obtained by causing other groups to enter instead of the methyl group. In a recent paper (*Ber. d. Deutsch. Chem. Ges.*), he announces and describes three such compounds, one of which is the lower homologue of true cocaine, while the others are metameric or higher homologues. Two of these could not be obtained in a crystalline form, but only in form of oil. The third, however, as well as the salts of all three, are crystallizable. Whether any of these new "cocaines" possess special therapeutic properties has not yet been ascertained, or at least not been announced. It is not improbable that some of them will be found serviceable.

Artificial Sugar.

The problem of producing cane sugar synthetically, though still far removed from the point when it can be used practically, has been brought another step nearer solution by the continued researches of Emil Fischer, in conjunction with Julius Tafel. In a recent paper, published in the *Berichte* (1889, 97) they give the results of their researches, the most remarkable of which is, that they have succeeded, for the first time, in producing a sugar which can be fermented by yeast, like the natural sugars. The only difference from the latter is this, that the artificial sugar is optically inactive, but the discoverers hope to obtain optically active sugars by means of fermentation. The new sugar has, provisionally, been called *acrose*. The starting point is glycerin, from which, by way of its decomposition product, *acrolein*, two new kinds of sugar: $C_6H_{12}O_6$ had already some time ago been prepared by the authors, by means of treatment with baryta or alkalies. One of these sugars had been designated *alpha-acrosazon*. It has now been found that this latter may be partly converted, by means of hydrochloric acid, into a new substance, resembling glucoson, which the authors term *alpha-acroson*. When this is treated, in a dilute aqueous solution, with zinc-dust and acetic acid, it is completely reduced inside of one hour. The mixture is then treated with hydrosulphuric acid, the precipitate filtered off and the filtrate evaporated in a vacuum. The residue is dissolved in absolute alcohol, the solution filtered, and the filtrate, after being highly concentrated, mixed with much ether. This precipitates the new sugar, *acrose*, in colorless flakes, which soon change to a syrup, and has the greatest resemblance to natural sugars, having a sweet taste, reducing Fehling's solution, and responding to other tests characteristic of sugars.

Permanent Caffeine Salts.

Merck some time ago announced that he has succeeded in producing true salts of caffeine with citric, cinnamic, and hydriodic acids, which did not decompose or split up when coming in contact with water. It will be remembered that Prof. J. U. Lloyd (see New Rem., 1881, 38) succeeded in preparing crystallized caffeine citrate, but this salt did not bear solution in water without decomposition. In what manner Merck succeeded in producing a permanent salt is not stated. But the citrate, as now available, is stated to be soluble in 30 parts of water at 42° C.

Mr. H. V. Dakers, of 45 Liberty street, New York, agent for the sale of the "Art of Dispensing" noticed in our December number, calls our attention to an error on our part in stating the price to be $1. The correct price is $1 25.

College of Pharmacy of the City of New York.—The present session, which is materially longer than any of its predecessors, is believed to have been the most successful, in results of teaching, which the college ever passed through. The number of members of the senior class is 131, and that of the junior class 159. The new method of instruction adopted by Prof. Elliot in the chemical and pharmaceutical laboratories has proved a decided success, and has resulted in a much better practical training of the students. The department of pharmacognosy has gradually been expanded so as to cover a larger ground than in former years, and the instruction bestowed in this discipline is thoroughly appreciated by the students, who thus obtain a sound and firm foundation for the diagnosis of commercial drugs.

Various improvements have been planned for the next winter session (1889–1890). In this connection it may be announced that, owing to the resignation of the present professor of botany and materia medica, Dr. Walter De F. Day, the college has selected, as his successor (after the close of the present winter session), Dr. H. H. Rusby, who is well known as an expert botanist, and who has made extensive travels on this Continent, both north and south of the equator, in pursuit of knowledge referring to the branches of science he will be called upon to teach.

The Commencement Exercises will be held on Tuesday, April 16th, at Steinway Hall, at 7:30 P.M.

The Rhode Island Pharmaceutical Association, at its fifteenth annual meeting, held in Providence on the 9th of January, elected the following: President, F. A. Jackson, Woonsocket; Vice-President, J. T. Wright, Newport; Secretary, W. E. Cotes, Providence; Treasurer, A. W. Feemer, Jr., Providence; Executive Committee, J. H. Taylor, Newport; N. N. Mason and J. O'Hare, Providence. The Treasurer reported a balance of $112.72.

The New Haven (Conn.) Pharmaceutical Association have elected at the annual meeting, January 15th: President, N. J. Beers; Vice-President, C. Fleischner; Secretary, H. I. Sperry.

The Moffitt-West Drug Company, composed of a number of gentlemen of whom the most were in the employ of the Richardson Drug Company, is to succeed the latter company, whose establishment was burned in January.

The South Dakota Board of Pharmacy will meet at Flandreau, Dakota, on March 12th, 1889, for the examination of candidates for registration. Application may be made to the secretary, B. F. Stearns, at his office in Aberdeen, Dakota, who will furnish blanks on request.

A College of Pharmacy has been organized under the auspices of Willamette University, at Portland, Oregon. The professor of pharmacy is John M. A. Laue, of the class of '81 of the College of Pharmacy of the City of New York, and the class numbers 20 students.—*Western Druggist.*

CORRESPONDENCE.

An American Odoriferous Insect.

EDITORS OF THE AMERICAN DRUGGIST:

I NOTICED on page 217 of your last November number an article entitled: "A Perfumed Insect." In this connection I desire to call attention to the fact that in this country we have an insect which is probably well known to entomologists, and which is also a "perfumed insect." This insect is familiar to persons whose occupations bring them about the rivers and streams of this section of the country, and probably is common elsewhere. Its common name is "write my name," so called from the curious manner in which it runs or swims about the surface of the water with great rapidity, especially when disturbed. I do not know its proper systematic name. It is of a dark-brown color, and occurs in little schools along the edges of our streams where the current is not swift. These insects, when disturbed, exhale, while young, a fruit-like fragrance, which is likened by some persons to the odor of early harvest apples, and it is quite pleasant. If they are caught and held in the hand, they impart this odor to the latter, and it seems as though the irritation excites them to emit it. When they are old, or at least very large, they exhale a much stronger, indeed an unpleasant, odor.

By the way, throughout the South and this section of the country we have what is known in popular language as the "tumble bug," which insect invariably excites much attention from Northern people (the insect is rare or unknown in the North), owing to the manner in which it rolls (tumbles) balls of food about half an inch in diameter with its hind legs to the spot where it digs a deep hole in the ground, and probably deposits its eggs inside the ball. These insects also, when excited, exhale an odor, but it is intensely offensive, as is soon discovered by persons who anger them. J. U. LLOYD.

CINCINNATI, OHIO, February, 1889.

[The "tumble bug," or "tumble dung," is the name given to several beetles of the family of Scarabæidæ, but especially to *Coprobius volvens*. The ball which it rolls contains its eggs, and is composed of dung, the fermentation of which develops the heat required to hatch the eggs. This variety of beetle is found as far north as New York State.

At our solicitation, Mr. William Congdon Wood, of New York, has furnished us with the following notes on this subject, which will, we think, prove of interest.—ED. AMERICAN DRUGGIST.]

Some Odoriferous Insects.

FEW persons who are accustomed at all to observe natural objects can have failed to notice that many insects are perfumed, or odoriferous. The latter word is, perhaps, the more applicable, since the odor of many insects is anything but perfume.

In the case of such as live in waste and decaying animal matter the odor is the result of their food and surroundings, but with many insects there is no such cause for it, and we must suppose that they have been endowed with a special perfume for some useful or necessary purpose. Thus we find many insects which are, apparently, protected from their enemies by their pungent or fetid odor. A small blue and yellow beetle (*Brachinus fumans*) is accustomed, when disturbed, to discharge from its anal opening a cloud of bluish vapor, accompanied by a sharp report, from which it has been popularly named the Bombardier. This vapor, which is a liquid volatized by contact with the atmosphere, has a suffocating smell, and burns the fingers quite severely if the insect is picked up. The large green beetle (*Calosoma scrutator*) which is often to be seen running over sunny places, has a very peculiar fetid odor, as have almost all the other members of that family (Carabidæ).

With some insects their perfume seems to be useful as a sexual attraction. As an instance of this may be mentioned the case of a large black wood-boring beetle (*Prionus laticollis*) which possesses a powerful odor very nearly resembling that of musk. The females are more noticeable in this respect than the males, their perfume being so strong as easily to be perceived by a person when several yards distant. The pretty yellow and black striped beetle (*Cyllene robiniæ*), whose grub is so destructive to our locust trees, has a very strong and peculiar odor, which scarcely resembles any other, unless it be that of phosphorus. The beetles feed in numbers on the Golden-rod (*Solidago*) in September, and very much resemble the striped hornets which are also found there frequently.

The odor of many insects closely mimics that of various vegetable substances. Thus the common brown wasp resembles in smell the vanilla and tonka beans, as do also several species of the brightly-colored tiger beetles (*Cicindelæ*), which run and fly along sunny roads and shores. A large shining bronze beetle (*Osmoderma eremita*), often found in old orchards, has the perfume of a ripe peach, and a little blue and green ground beetle (*Chlœnius nemoralis*) that of the butternut. The blackish "squash-bug" (*Corcus tristis*) has an odor somewhat resembling that of the pine-apple. This insect, when disturbed, has a curious way of tilting itself to one side and throwing out a fine spray of volatile, and probably irritating, liquid from pores along its abdomen. It is sufficient, in closing, to mention one more bug, the *Cimex lectularius*, which, although best known for its blood-loving propensities, has also a peculiar and distinctive odor. W. C. WOOD.

NEW YORK, February, 1889.

The San Francisco Meeting of the A. P. A.

EDITOR AMERICAN DRUGGIST.

DEAR SIR:—To publicly reply to many inquiries concerning the time required and the minimum total cost of the trip to San Francisco and return, I respectfully request that you will give some information on this subject in the next issue of your journal.

As to the time, I may say that twenty-one days will suffice from the farthest point East, and proportionately less according to the locality. It is contemplated by many, however, to stop over a day or more en route.

Monday, June 17th, has been fixed upon by the committee on arrangements for those visiting members of the A. P. A. to be in Denver who desire to avail themselves of the proffered hospitalities of the Denver Phar. Ass'n.

Those who do not wish to stop over on the way need not leave their homes on the Eastern seaboard until this date, or even a day later in some localities, in order to reach San Francisco in time for the opening session of the annual meeting, June 24th. At the present excursion rate, the necessary total cost of the trip, from Boston say, need not exceed $210, travelling first-class in every particular, with meals, sleeping cars, hotel in San Francisco during the meeting, etc.

This estimate is based upon the present rate—fare, $135, and for Pullman sleepers, $43, round trip, with meals, hotel, and other contingent expenses. We confidently anticipate, however, that a further reduction from this fare will be made for us by the trunk lines which will reduce the cost at least $15. It is also arranged that passengers can go by one route and return by another, as they may individually elect. For the Eastern contingent it is proposed to go by way of the Chicago, Denver, then by the "Scenic Route of the World" (the D. & R. G.) to Salt Lake, and the Central Pacific to San Francisco, returning by the Northern Route, which will cost $15 additional, the fare from San Francisco to Portland; or, if preferred, any other transcontinental lines can be selected without additional cost. A full "itinerary" is now in preparation which will be ready in the course of a week or ten days.

The Western members have also arranged for a special excursion from St. Louis over the Union and Central Pacific which is open to every one to join. The cost of this is $150 from St. Louis, with all expenses paid outward and railroad fare paid back to starting point.

Arrangement is also in progress for a special excursion from Chicago by which the trip can be made at considerably less cost than any other, inasmuch as sleeping cars will be provided by the railroad company at a nominal price, if not entirely free of cost.

EMLEN PAINTER,
Chairman Com. on Arrangements,
Broadway and 34th St., New York.

Erythrine is an alkaloid derived from a Mexican plant, *Erythrina coralloides*, or colorin, as it is there called. Dr. Fernando Altamirando, the discoverer of the active principle, calls it "erythrine." It is a white, spongy, greasy solid, crystallizing in various forms, melting at a low temperature, and forming a dark yellow liquid with disagreeable and characteristic odor. It is soluble in water, ether, and benzol, still better in chloroform, and very freely in alcohol. From an alcoholic solution it is precipitated by alkalies, especially by ammonia, as an amorphous substance resembling resin. Concentrated nitric acid dissolves it, rendering it slightly yellow. It is precipitated by bichloride of mercury, double iodide of bismuth and potassium, bichloride of platinum, and by bichromate of potassium. It contains nitrogen. It has great power in counteracting strychnine poisoning, and can be borne by the human subject, without danger, in doses in 0.6 gramme.—*Pharm. Journ.*

Batjitjor Root has recently been recognized as the root of *Vernonia nigritiana*, a composite growing in Senegambia to the height of a foot or more. Dorvault alludies to it as a substitute for ipecacuanha, to which it has a faint, external resemblance. Heckel and Schlagdenhauffen have obtained from it a whitish, slightly hygroscopic glucoside, which they call vernonin, and which has the formula $C_{16}H_{14}O_7$. Its action resembles that of digitalis, but it is estimated to be twenty-four times weaker than the soluble principle of digitalis (digitalein).—*Pharm. Jour.*

Members of the Louisiana State Board of Pharmacy.—Jos. T. Thibodeaux, Thibodaux, La., President; Wm. Graner, New Orleans, La.; Alex. K. Finlay, New Orleans, La.; F. M. Brooks, Baton Rouge, La.; R. L. Iler, Shreveport, La.; James A. Lee, New Iberia, La.; Oscar Robin, New Orleans, La.; R. N. Girling, New Orleans, La.; F. C. Godbold, New Orleans, La., Secretary.

QUERIES & ANSWERS.

Queries for which answers are desired, must be received by the 5th of the month, and must in every case be accompanied by the name and address of the writer, for the information of the editor, but not for publication.

No. 2,286.—**Bleaching and Polishing Sole Leather,** (Haverhill, Mass.).

This correspondent wishes a receipt for bleaching sole-leather and polishing it so as to leave it of a glossy, creamy-white color. Our experience in this direction is very limited, but we are informed that leather may be bleached by means of oxalic acid and polished by friction. In the preparation of pale leather the bleaching is commonly done before finishing, and the machinery used for polishing the face of finished hide is of such powerful construction as to admit of the use of great pressure with a roller. This roller is passed back and forth across the surface until it has been brought to the requisite degree of hardness and polish.

No. 2,287.—**Sponge Tents** (J. E. L.).

We are not aware that any sponge tents are made in this country, the cost of labor here making it cheaper to import them. The method of making them consists in selecting pieces of sponge which are not too fine and soft, as these are not sufficiently elastic, and not too coarse, since they would not dilate evenly. After thorough cleansing, the pieces are transfixed lengthwise upon stout wire and moistened with mucilage of gum-arabic. They are then wrapped very tightly with strong cord and dried thoroughly. The cord is then removed and the proper shape given to the tents with the aid of a sharp knife and sand-paper. After removing the wire a hole is made through the thick end by means of an awl, and a loop of cord threaded through it. Dr. J. C. Nott suggested that each tent should be wrapped in gold-beater's skin which should be punctured in several places to admit fluids; the gold-beater's skin serving to prevent fragments of the sponge becoming entangled in the openings of the mucous glands and folds in the canal of the uterus.

No. 2,288.—**Bright-red Ink** (M. F. N., Kansas).

This subscriber wants a receipt for a bright-red ink not made with carmine. Here is a very good one:

Eosin (A, yellowish)	½ oz.
Glycerin	3 fl. oz.
Water	24 "
Alcohol	enough to make 32 "

Dissolve the eosin in the water (hot), and add the glycerin. Allow to cool, then add enough alcohol to make 32 fl. oz.

This ink will stand considerable dilution. Even when mixed with an equal volume of water, it will be quite brilliant yet.

Eosin is an aniline color, being chemically tribromofluoresceine. There are a variety of shades of it, from decided yellowish-red to scarlet-violet. In purchasing, it it is best to specify "Eosin A, yellowish, for red ink."

The addition of 1 grain of gelatin (dissolved in some of the water) and ½ grain of bichromate of potassium to every ounce of the ink will make it dry more quickly on paper.

No. 2,289.—**Works on Perfumery** (W. B. S.)

There are many works on this subject. The most useful for general purposes are the following: The "Art of Perfumery," by G. W. S. Piesse, 8vo, London. "A Comprehensive Treatise on Perfumery," by R. S. Cristiani, 8vo, Philadelphia and London. "Die Riechstoffe," von Dr. St. Mierzinski, 8vo, Weimar. "Toiletten Chemie," von Heinrich Hirzel, 12mo, Leipzig. "Guide pratique du Parfumeur," par Dr. A. B. Lunel, 12mo, Paris. "Die Parfumerie Fabrikation," von George William Askinson, 12mo, Wien (Hartleben), and others.

The prices of these works may be learned by writing to some book importer; for instance, J. H. Vail & Co., 21 Astor place, N. Y.

No. 2,290.—**Jayne's Expectorant** (J. W. W. and B. S.)

The following formula is stated by Kilner to produce a mixture very much resembling this preparation:

Tincture of Tolu	1½ fl. oz.
" " Camphor	1 fl. dr.
" " Lobelia	1 " "
" " Digitalis	1 " "
" " Opium	2 " "
Syrup of Squill	2 fl. oz.
Ipecac, powd	4 gr.
Tartrate of Antim. and Pot	4 "

Dissolve the Tartrate of Antimony and Potassium in the Tincture of Lobelia or Digitalis, and mix with the other ingredients. [We have never examined it ourselves, but would have supposed that the originator of the formula had used the fluid extract of ipecac, rather than the powdered drug, which must eventually form a deposit at the bottom.—Ed. Am. Dr.]

No. 2,291.—**Benzin as Cleansing Fluid** (E. Ch.)

The use of benzin as a cleansing fluid for clothes is restricted to such stains as are caused by substances soluble in benzin. In place of moistening a sponge or rag with benzin and rubbing it over the stain, it is often preferable to thoroughly moisten the stain with benzin, then to place over it several layers of blotting paper, and a hot flat-iron on top of this. Instead of the greasy solution being wiped all over the fabric, as is done when a sponge is used, the grease, etc., will be drawn up into the blotting paper. On repeating the process several times, the whole of the stain is easily removed. In the case of paint-stains, this latter process will, of course, not answer, since the insoluble coloring material requires to be removed by friction. We prefer chloroform and a sponge in such cases.

The most satisfactory cleansing liquid for all kinds of stains, both soluble in highly volatile solvents, and those soluble in water, is a solution of benzin in polysolve. For this purpose, polysolve (Dr. Mueller-Jacobs'), preferably the ammonium compound (sulpho-ricinoleate of ammonium), is mixed with a little excess of ammonia, then with an equal volume of benzin. For use, a small portion of the liquid is diluted with from 4 to 10 volumes of water, and applied by means of a sponge or rag.

No. 2,292.—**Friedrichshall and other Artificial Mineral Salts** (M. J. B. & Co.).

In previous volumes we have given a number of formulæ for preparing both artificial mineral waters and artificial mineral water salts. These may easily be found by referring to the indexes. In addition to these, we now publish a few formulæ recommended by Eug. Dieterich:

1. *Clemenshall Salts.*

Sodium Chloride	945 parts
Magnesium Chloride, dry	25 "
Calcium Chloride, fused	5 "
Sodium Bromide, dry	5 "
Calcium Sulphate, precip	20 "

2. *Friedrichshall Salts.*

Sodium Chloride	377 parts
Sodium Bromide	3 "
Potassium Chloride	50 "
Calcium Chloride, fused	190 "
Magnesium Chloride, dry	370 "
Calcium Sulphate, precip	10 "

3. *Kreuznach Salts.*

Sodium Chloride	63 parts
Potassium Chloride	75 "
Calcium Chloride, fused	750 "
Magnesium Chloride, dry	110 "
Sodium Bromide, dry	2 "

4. *Reichenhall Salts.*

Potassium Chloride	60 parts
Magnesium Chloride, dry	720 "
Lithium Chloride	1.5 "
Sodium Chloride	140 "
Sodium Bromide, dry	8.5 "
Magnesium Sulphate, dry	70 "

No. 2,293.—**Liquor Carbonis Detergens** (B. & C.).

This is generally understood to denote the same preparation which is known under the name Coaltar saponiné (Lebeuf's). It has been much used in veterinary practice, and also, to some extent, by the medical profession in certain external diseases of man, or as an antiseptic.

It may be prepared in the following manner:

Tincture of Quillaja	100 parts
Coal Tar	50 "

Digest them during eight days at a moderate temperature, frequently shaking, and avoiding loss of alcohol. Finally filter.—The tincture of quillaja should be made, for this purpose, by means of alcohol of 65 per cent, best by percolation.

No. 2,294.—"**Mistura Fusca**" (J. D. P. G., La.).

This correspondent writes: I received the following prescription:

℞ Mist. Fuscæ	℥ 3½
Spir. Æther. Nit.	℥ ½

Upon examining the "Dispensatory," I could not find a drug or mixture bearing the name "fuscæ."

If our correspondent had consulted a Latin dictionary, he would have been able to solve the problem readily. Fuscus, a, um, is an adjective, meaning "brown." *Mistura fusca*, therefore, means "brown mixture," and, as everybody knows, this is the popular name for "Mistura Glycyrrhizæ Composita." Sometimes writers give the popular name as "Brown's Mixture," as if it had been originated by a person of the name of Brown. This is a mistake. The name is derived from the color. The adjective fuscus is also used in other pharmaceutical terms, for instance, *Syrupus fuscus*, or "brown syrup," is used as a synonym for "molasses."

No. 2,295.—**Armitage's Test for Morphine** (B. O.).

Some time ago, Mr. Lister Armitage announced a new test for morphine (see this journal, 1888, p. 70), which consisted in adding to the morphine a very dilute solution

of ferric chloride, and afterwards a little ferricyanide of potassium, whereby a blue color is produced. Armitage explained this reaction by stating that the morphine reduced part of the ferric salt to ferrous, which then reacts with the ferricyanide and produces Turnbull's blue.

Dr. O. Hesse subsequently denied the correctness of this explanation. He ascribes the reaction to the formation of pseudo-morphine and hydroferrocyanic acid, according to the following scheme (with morphine hydrochloride and potassium ferricyanide):

$$8(C_{17}H_{19}NO_3.HCl) + 8K_3FeCy_6 = 4(C_{34}H_{36}N_2O_6.2HCl + 6K_4FeCy_6 + 2H_4FeCy_6$$

morphine hydrochloride; potassium ferricyanide; pseudo-morphine hydrochloride; potassium ferrocyanide; hydroferrocyanic acid

After the mixture of the two solutions, the liquid acquires an acid reaction, and if the solution is not too dilute, ferrocyanide of pseudo-morphine will be found deposited, in the form of a resinous precipitate, tolerably soluble in water. The reaction then is due to the ferric chloride acting upon the potassium ferrocyanide produced. The reaction is shown in a striking manner as follows: A small quantity of a moderately concentrated solution of a salt of morphine is added to a very dilute solution containing equivalent quantities of ferric chloride and potassium ferricyanide. A single drop suffices to produce in the iron solution a most intense blue coloration. If the morphine solution be extremely dilute, for example, 1 part in 1,000, no coloration is observed immediately, but in a few seconds the presence of morphine is shown by the appearance of blue streaks in the liquid.

The original paper of Dr. Hesse will be found in the *Pharm. Journ.* of March 24th, 1888.

No. 2,296.—**Estimation of Arsenic or Antimony in Organic Compounds** (Mel).

The most expeditious method for estimating the amount of arsenic or antimony in organic compounds, particularly those of definite chemical composition, is that by chromic acid, first announced by Cross and Bevan and subsequently improved by others. These chemists found that organic compounds are completely oxidized by being warmed with chromic and concentrated sulphuric acid.

To apply the method to the detection of arsenic or antimony proceed as follows:

Place 0.3 to 0.4 Gm. of the substance, together with 4 to 5 Gm. of chromic acid into a flask of the capacity of about 500 C.c., connect the flask with an upright condenser, and pour about 10 C.c. of a mixture of 2 parts of concentrated sulphuric acid and 1 part of water down through the condenser tube. Heat gently during one hour, then add again 10 C.c. of sulphuric acid, and continue heating for another hour. The heating must be done with great care, and when the reaction is over, and the contents of the flask are cold, they must be perfectly clear.

The liquid now contains all arsenic or antimony in form of arsenic or antimonic acids, which are tested for or separated in the usual manner indicated by the text-books.

No. 2,297.—**Simulo** (B. J. A.).

This is the name of a comparatively new drug, derived from the fruit of *Capparis coriacea*, which somewhat resembles a dried, unripe prune. Thomas Christy introduced the drug two years ago in form of a tincture. It has been recommended in epilepsy, by Hutchinson and Larrea. Dr. Hale White also reported favorably upon it, in the *Brit. Med. Journal*. On the other hand, it did not lead to very successful results in the hands of Prof. Eulenburg. At present it is tried in some of the public hospitals of New York. This will soon show whether it is of use or not.

Formulæ asked for:

1. What is the composition of Kline's Nerve Restorer?
2. Piso's Cure for Consumption.
3. Piso's Catarrh Cure.

Spanish Licorice.

SPANISH licorice root, which is brought into commerce in very large quantities, party direct for pharmaceutical purposes, and partly as the raw material for the extraction of juice, is gathered from the wild plant which grows in abundance in the provinces of Toledo and Saragossa. The total annual production of dried root in Spain amounts to about 6,750,000 lbs. Gathering commences in September and continues until March, but the root is not thoroughly dry and fit for shipment until five months after gathering. The first supplies of the new crop are, therefore, as a rule, brought to market in the month of April. From Valencia about one-tenth of the crop, say 700,000 lbs., are exported yearly, the United States taking about 275,000 lbs., and the rest being distributed to France, Belgium, and Germany. The Valencia exporters distinguish three grades of licorice, viz.: "Extra quality," which is exported in sticks of 8 inches in length, packed in bundles weighing about 6½ lbs. The second grade, called "Flor," is packed in bundles of about 13 lbs. The outside sticks are 14 inches long, but the inner sticks of the bundle are much shorter. The third and commonest quality is sent over in bales weighing about 1¼ cwt., in sticks varying from 32 inches downwards. The present range of prices in Spain for the three varieties is as follows: Extra, 26*s.* per cwt; flor, 21*s.* 6*d.* per cwt.; common, 12*s.* 6*d.* per cwt. The two better grades are packed in bags, one bag containing twenty bundles, but the third is shipped corded only. The best and the commonest roots are sent to the United States, the medium goods principally to Germany. When the root is cut to the usual bundle-size, the trimmings are collected and sold to the local juice manufacturers.—*Chem. and Drugg.*

New Method of Manufacturing Iodoform.

MM. H. SUILLIOT and H. Raynaud have discovered a method whereby iodoform can be manufactured from *acetone* on a commercial scale, in such a manner as to transform at once the whole of the iodine employed. The process is the following: A solution is made of 50 Gm. of potassium iodide, 6 Gm. of acetone, and 2 of sodium hydrate in about 2 liters of cold water. Next a dilute solution of potassium hypochlorite is dropped slowly into the first solution, which is to be stirred all the while. Iodoform is immediately formed, rapidly concretes together, and precipitates. The operation continues until the whole of the iodide has been transformed into iodoform, and the yield is nearly equal to theory. As the reaction is not impeded by the presence of neutral sodium salts, even in considerable proportions, the process can be, and has been, successfully applied to the washings of varech ashes. All that is necessary is to first remove all sulphides and sulphites, and next to determine the quantity of iodides contained in the lye. A proportional amount of acetone being now added, the hypochlorite is let in drop by drop, and the whole iodine can thus at once be separated in the shape of iodoform. The following equations most likely represent the reaction [which has been recast by us.—ED. AM. DR.]:

(1.) $KI + KClO = KCl + KIO$

pot. iodide; pot. hypochlorite; pot. chloride; pot. hypoiodite

(2.) $3KIO + C_3H_6O = CHI_3 + KC_2H_3O_2 + 2KOH$

pot. hypoiodite; acetone; iodoform; pot. acetate; potassa

No chloroform or iodate is formed at any stage of the process, and the mother waters contain caustic alkali and potassium acetate.—*Chem. and Drugg.*

Manicure Powder.—Oleate of tin, most commonly in use as a polishing powder for finger-nails, may be made by dissolving one part of white Castile soap in about sixteen parts of hot water, and adding gradually a ten-percent solution of chloride of tin until a precipitate no longer occurs. This precipitate is to be washed with water, and dried for use. Carmine may be used to color it.—*Dr. Cir.*

BIBLIOGRAPHY.

THE DISPENSATORY OF THE UNITED STATES OF AMERICA. By DR. GEO. B. WOOD and DR. FRANKLIN BACHE. Sixteenth Edition. Rearranged, thoroughly revised, and largely rewritten. With Illustrations. By H. C. WOOD, M.D., LL.D., etc., JOSEPH P. REMINGTON, Ph.M., F.C.S., etc., and SAMUEL P. SADTLER, Ph.D., F.C.S., etc. Philadelphia: J. B. Lippincott Company, 1888. Pp. 2,091, large 8vo. Muslin, $7.00.

THE fifteenth edition of this work appeared in 1883, since which time the additions to and changes in our knowledge of drugs have been so considerable as to require a very thorough revision of the contents. The editors announce over 600 pages of new matter, but, to avoid an increase in the bulk of the volume, enough matter has been cut out during the revision to limit the actual increase in number of pages to 167. The following are a few of the changes noticed: Throughout the part devoted to officinal articles the text has undergone considerable alterations, some matter having been omitted here and there; matter has been subdivided so as to introduce new titles in many places, and one meets frequently with new paragraphs giving the result of recent researches. Part II., of unofficinal articles, has been divided into two sections, the first consisting of the entire text of the National Formulary, and section second of the former list of unofficinal articles, which has also received many additions. Part III., relating to tests, has been revised and amplified. The chapter on mineral-spring waters contained in the fifteenth edition has been entirely omitted in this, effecting a considerable saving in space. As an indication of the increase in the amount of matter and the completeness with which the present edition is indexed, we will mention that this portion of the fifteenth edition covered 77 pages, while the index of this edition extends over 91 pages.

1863–1888: IN CELEBRATION OF THE TWENTY-FIFTH ANNIVERSARY OF THE FARBWERKE, VORMALS MEISTER LUCIUS & BRUENING. Hoechst on Main. 4vo. and fol.

THIS souvenir, issued by the well-known aniline color-makers and manufacturers of antipyrine, is an

artistic treasure such as we seldom remember having seen issued on such an occasion by any firm. In a tastefully embossed and printed portfolio is contained a quarto pamphlet giving a history of the works since their establishment. Accompanying this, is a fine, large, colored view of the works, and, as *pièce de resistance*, a folio carton, upon which are mounted, in the most tasteful manner, twenty flattened hanks of raw silk, dyed with various aniline colors, and so arranged as to present a perfect spectrum from red to violet, the beauty of which, especially when viewed under proper light, must be seen to be appreciated. The whole reflects the greatest credit upon the designers.

HAND-BOOK OF MATERIA MEDICA, PHARMACY, AND THERAPEUTICS. Compiled for the Use of Students Preparing for Examination. By CUTHBERT BOWEN, M.D., B.A., Editor of "Notes on Practice." Philadelphia and London: F. A. Davis, 1888. Pp. 366, small 8vo. Muslin, $1.40 net.

THIS appears to be a very good compilation, and is published in attractive shape and size; but it is of the class of books which we wish might grow less instead of more numerous. Especially do we object to the multiplication of ready-made prescriptions and the tendency which such books encourage, towards acquiring a superficial knowledge of medicinal substances.

The greatest proportion of space is devoted to the therapeutic effects of the articles mentioned, and the least to questions of a pharmaceutical nature. Indeed, in few instances is there any mention made of other than the most general features of a pharmaceutical character. On page 57 *et seq.* the author gives a "Classification of Drugs Recognized by the United States Pharmacopœia" which is unfortunate as a title, since it would lead many readers to suppose that the recognition referred to the *classification*, which is incorrect, since the pharmacopœia makes none.

RECENT MATERIA MEDICA. Notes on their Origin and Therapeutics. Third Edition. By F. HAROWOD LESCHER, F.C.S., etc. J. & A. Churchill, 11 New Burlington st., London, 1888. Pp. 92, 8vo.

THE author states that nearly a hundred titles have been added to this third edition, and examination of the contents shows that very few, if any, of the recently announced remedial substances have been overlooked. The book is, in fact, a very admirable compilation of recent literature, so far as relates to the leading facts, and lacks but one thing to make it of greater value: that is a bibliographical reference list. For general use, however, the present contents will satisfy the ordinary requirements.

PICTORIAL HISTORY OF ANCIENT PHARMACY, WITH SKETCHES OF EARLY MEDICAL PRACTICE. By HERMANN PETERS. Translated from the German, and Revised, with numerous Additions. By DR. WM. NETTER. Chicago: G. P. Engelhard & Co., 1889.

PORTIONS of the original work were translated by us and published in the AMERICAN DRUGGIST in February and March, 1887, at which time we commended the work to the attention of our readers. We are pleased that the enterprise of the Chicago house has put this translation of the entire book in a form which makes it available for readers of English. At the same time we are inclined to doubt the expediency of the changes and additions made by the American editor, since they were not needed to increase the value of the original. Moreover, the text, particularly in this part, contains some striking misprints. The references to early medicine and pharmacy in the United States, while interesting in themselves, might better have been published separately. At least it would have been better, so it seems to us, to have indicated in some manner the work of the editor and translator as distinguished from that of Mr. Peters. While the text is handsome and well arranged, the illustrations, owing to the defective method of reproduction, are not quite up to the quality of those in the original. These minor considerations aside, we have only words of commendation for the book, and assure our readers that they will not fail to be pleased with its perusal.

CLINICAL LECTURES ON ALBUMINURIA. By THOMAS GRAINGER STEWART, M.D., EDIN., etc. New York: Wm. Wood & Co., 1888. Pp. 250, 8vo.

THE author is among the highest authorities on renal affections and has the additional merit of being an agreeable writer and accurate observer. The work at hand is based upon several contributions to journal literature and his former work on "Bright's Disease of the Kidneys," and accurately represents our knowledge of these affections at the present time. The list of references and the index are admirable features of the work.

193 ILLUSTRATIONS. THE VEST-POCKET ANATOMIST (Founded upon "Gray"). By C. HENRI LEONARD, A.M., M.D., etc. Fourteenth Revised Edition. Containing Dissection Hints and Visceral Anatomy. Detroit: The Illustrated Medical Journal Co. [No date.] Pp. 297.

THIS is a vest-pocket anatomist only in title, no vest-pocket in common use being capable of containing it. It is an improvement upon the ordinary cram-book only in so far as it furnishes illustrations, which greatly aid in memorizing the enormous aggregation of facts connected with this branch of study.

YEAR-BOOK OF PHARMACY. Comprising abstracts of Papers relating to Pharmacy, Materia Medica, and Chemistry, contributed to British and Foreign Journals, from July 1st, 1887, to June 30th, 1888, with the Transactions of the British Pharmaceutical Conference at the XXVth Annual Meeting held at Bath, September, 1888. London: J. & A. Churchill, 1888. Pp. 505, 8vo.

IN addition to the usual contents, this issue of the year-book contains the British unofficinal formulary, a feature which adds considerably to the value of the book as a work of reference for American readers.

THE CALENDAR OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 1889. London, 1889. Pp. 541, 8vo. 2s.

WHILE most of the contents of this calendar are of local interest only, there is no more convenient authority for the legal status of pharmacy and pharmaceutical education in Great Britain. It should be found in all public libraries in this country.

THE CHEMISTS' AND DRUGGISTS' DIARY, 1889. Twenty-first Year of Publication. Including Nostra Pharmaceutica, and other General and Special Information for the Chemical and Drug Trades.

THIS publication preserves its interesting character and practical value, and is alone worth the price of subscription to the journal. The space devoted this year to practical formulas and suggestions is unusually great.

MINERAL RESOURCES OF THE UNITED STATES. Calendar Year 1887. DAVID T. DAY, Chief of Division of Mining Statistics and Technology. Washington: Government Printing Office, 1888. Pp. 832, 8vo. Muslin, $0.50.

THIS is the fifth in a series of valuable reports commenced in 1882, and contains a great deal of valuable information. The chapter on mineral waters, by A. C. Peale, and another on mineral paints, are likely to be of especial interest to the drug trade. Copies of the report may be purchased by inclosing a postal note or money order to the director of the U. S. Geological Survey, Washington, D. C.

ANNUAL REPORT OF THE BOARD OF HEALTH OF THE CITY OF MINNEAPOLIS. For the year ending March 31st, 1888. Pp. 96, 8vo. With map.

THIS is a model report, in so far as it covers the field of municipal sanitation.

PROCEEDINGS OF THE OHIO STATE PHARMACEUTICAL ASSOCIATION at its Tenth Annual Meeting, held in Columbus, June 12th, 13th, 14th, and 15th, 1888. Together with the Constitution, By-Laws, and List of Members. Pp. 144, 8vo.

THIS latest volume of an interesting series of reports is fully as interesting and valuable as its predecessors.

PROCEEDINGS OF THE TEXAS STATE PHARMACEUTICAL ASSOCIATION, held at Austin, June 12th, 13th, and 14th, 1888, etc. Pp. 59, 8vo.

PROCEEDINGS OF THE MINNESOTA STATE PHARMACEUTICAL ASSOCIATION at the Fourth Annual Meeting, held at Stillwater, Minn., June 12th and 13th, 1888. Pp. 140, 8o.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION at the Thirty-sixth Annual Meeting, held at Detroit, Mich., Sept., 1888. Also the Constitution, By-Laws, and Roll of Members. Philadelphia, 1888. Pp. 700 and 176, 8vo.

THIS is arranged in sections corresponding to the sections composing the association. Twenty-one papers and the allied discussions are included, and the report on the progress of pharmacy covers nearly 300 pages. The unofficinal formulary, with an independent index, is bound with the proceedings, and adds greatly to the value of the volume.

REPORT ON HYDROPHOBIA. By CHAS. W. DULLES, M.D., of Philadelphia. Reprinted from the Transactions of Medical Society of the State of Pennsylvania. Pp. 8, 8vo.

A NEW SERIES OF BERLIN WOOLS FOR THE SCIENTIFIC DETECTION OF SUBNORMAL COLOR-PERCEPTION (Color-blindness. By CHARLES A. OLIVER, M.D., of Philadelphia. Reprinted from the Transactions of the American Ophthalmological Society, 1886. Pp. 13, 8vo.

THE PREFERABLE CLIMATE FOR PHTHISIS; or the Comparative Importance of Different Climatic Attributes in the Arrest of Chronic Pulmonary Diseases. By CHARLES DENISON, A.M., M.D. Pp. 15, large 8vo, with map.

CATALOGUE OF THE TOKYO MEDICAL LIBRARY. Tokyo, 1888. Pp. 46, small 8vo.

WHY ELECTROLYTIC TREATMENT OF STRICTURE DOES NOT SUCCEED IN ALL HANDS. By G. C. H. MEIER, M.D. Pp. 18, small 8vo.

ESSENTIAL OIL OF SANDAL (Ol. Santal. Flav. Pur.): Its History, Preparation, and Properties. By L. MIDY, Pharmacien de 1re Classe. Paris, 1887. Pp. 39, small 8vo.

PHENACETINE (Beyer). A new Antipyretic and Antineuralgic. W. H. Schieffelin & Co., New York, 1888. Pp. 24, 8vo.

REPORT on the Experiments made in 1887 in the Treatment of the Downy Mildew and the Black-Rot of the Grape Vine, with a Chapter on the Apparatus for Applying Remedies for these Diseases. Prepared by F. LAMSON SCRIBNER, under the Direction of the Commissioner of Agriculture. Washington, 1888. Pp. 113, 8vo.